

# American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 95, No. 24

CHICAGO, JUNE 16, 1928

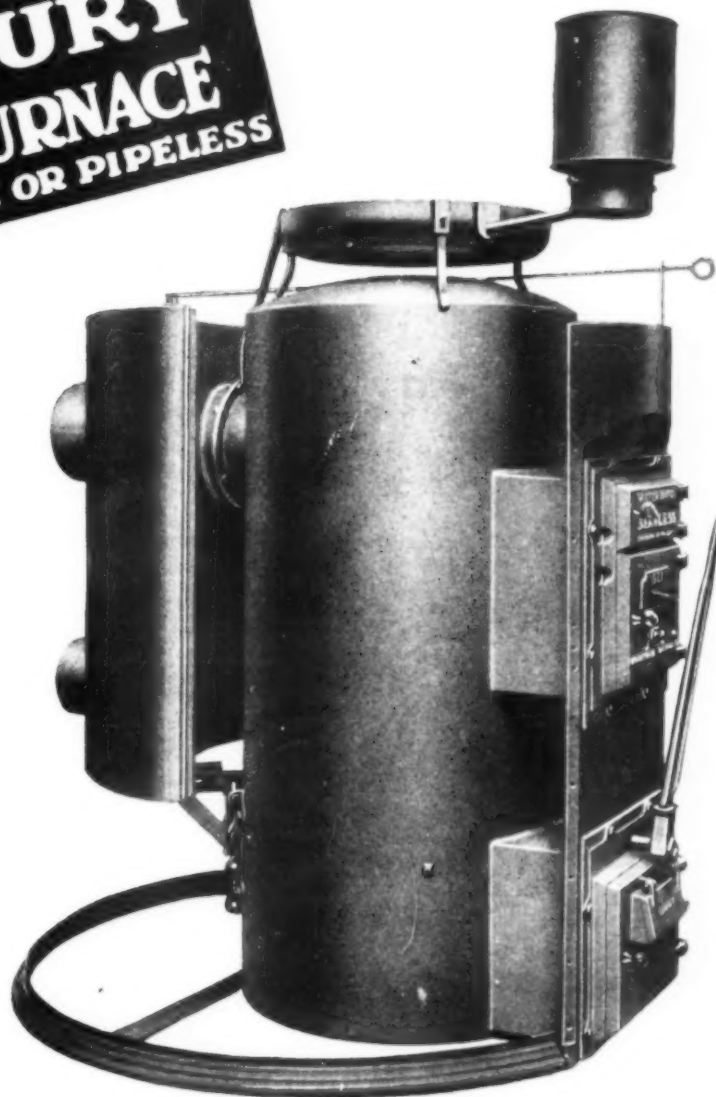
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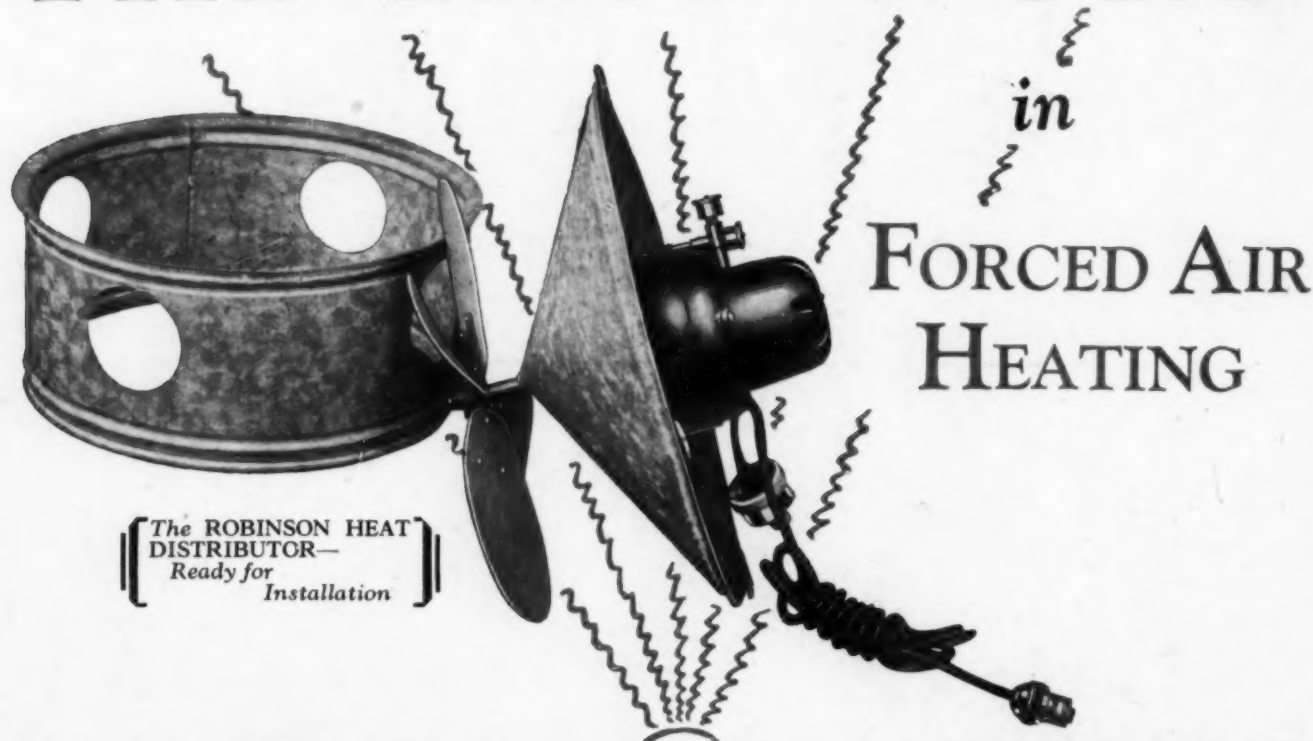
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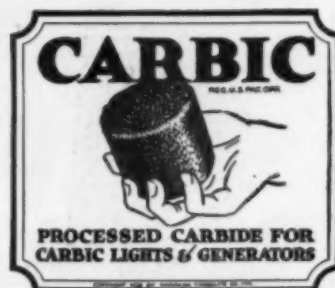
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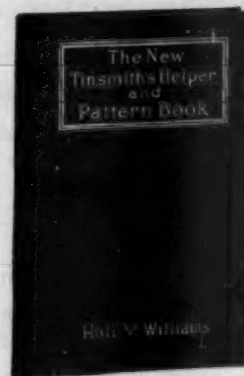
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January 9, 1928

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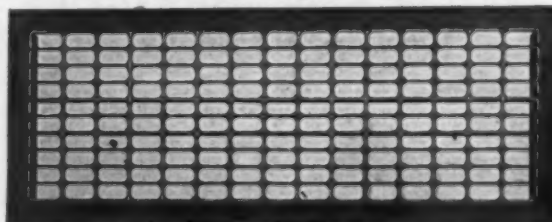
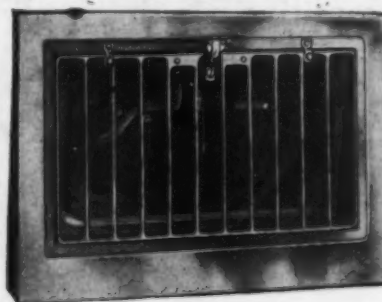
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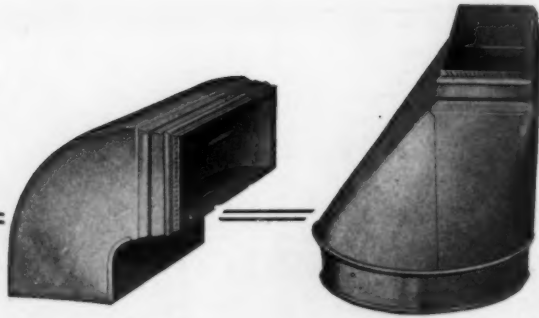
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Founded 1880

Published to Promote  
Better  
Warm Air Heating  
and  
Sheet Metal Work

# American Artisan

The Warm Air Heating and Sheet Metal Journal

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*I am the most desirable thing in life. Without me no one can be healthy, happy or useful.*

*The hidden wealth and vast resources of this earth would have no value without me.*

*I am the great developer of man. No other agency has called forth so many of his hidden treasures, developed more power of mind and body than I have.*

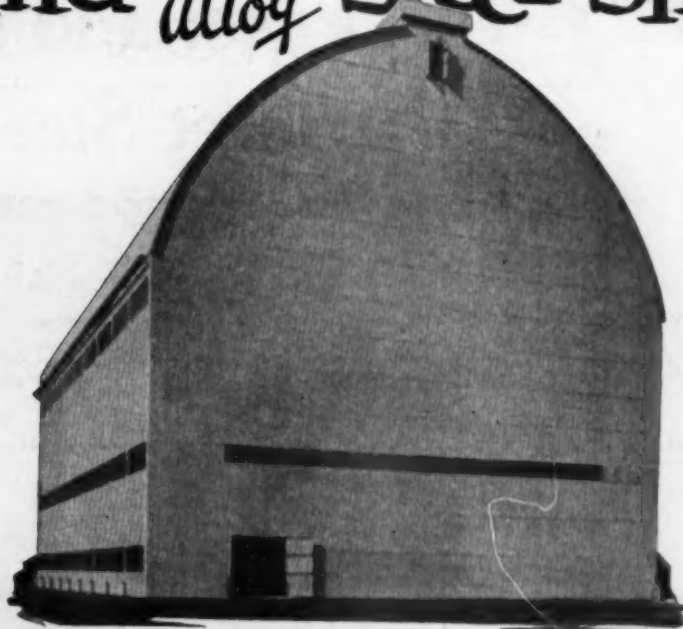
*Men and women who try to get along without me are characterless, selfish, undeveloped, useless and unprofitable members of society. I am behind every fortune, every art and science, every achievement, every triumph of man.*

*Rich men and poor men alike often try to find substitutes for me, hoping thereby to secure a larger measure of happiness, peace, and satisfaction, but they are always bitterly disappointed. Instead of gain, every substitute for me brings them infinite loss.*

*As the creator is greater than the creature, so I am greater than wealth, power, fame, learning, or any other acquired possession or quality of man, because I am the source through which he acquired them.*

*I am—Work.*

# Inland *Copper Alloy* Steel Sheets



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Twelve years ago, the American Society for Testing Materials, an unbiased scientific and technical organization, placed a variety of unprotected black sheets in racks at Pittsburgh, Pa., Fort Sheridan, Ill., and Annapolis, Md., to determine which of the various materials exposed, best withstood rust and corrosion.

The verdict was *Copper Alloy Steel Sheets*. The so-called "pure irons" crumbled away months before the copper alloy steels showed failure. Those without the copper addition went first; those with it showed its beneficial effects—neither type compared with the *Copper Alloy Steels*.

This is why we so strongly recommend INLAND COPPER ALLOY STEEL for all exposed uses. It can be furnished in Blue Annealed, Box Annealed and Galvanized Sheets.

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**"We went right back the next year and sold him a Sheet Steel roof"**



"ONE of the fine things about Sheet Steel is that one good installation sells another. It gives satisfaction."

"You know old man Timmins down the street, the Model Hand Laundry chap. Well, his was a typical case."

"We tried for months to sell Timmins a Sheet Steel roof. No use! He said Sheet Steel was no good—insisted he'd tried it and that it rusted right out. I asked him if he'd painted the job and he said no. I tried to tell him that the protection of paint makes Sheet Steel the most economical roof covering known. But no use! He wouldn't have it."

"One day, I met Timmins on the street. He was mad—said his plaster ceiling had just fallen again. The steam and moisture were too much for it. He mumbled something about 'tenth time!' and seemed discouraged."

"I said, 'Timmins, let me put a Sheet Steel ceiling on

there and end your trouble.' He hooted the idea at first but I won him over finally,

"So we put the pressed steel ceiling on and saw that it had a good coat of paint—nice job."

"Well, we went right back the next year and sold him a Sheet Steel roof. His steel ceiling had won him over. It was as good as the day we put it up. He told me afterwards that he figured that if Sheet Steel would stand the racket inside his laundry it would certainly stand it on the roof!"

\* \* \*

For suggestions on selling Sheet Steel, write the SHEET STEEL TRADE EXTENSION COMMITTEE, TERMINAL TOWER BUILDING, CLEVELAND, OHIO.

**SHEET STEEL**  
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# American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 95

CHICAGO, JUNE 16, 1928

No. 24



New Plant of Farwell-Dettmers Company, 2617 Fletcher Street, Chicago, which is a Model in Shop and Machine Arrangement

## Efficiency of Personnel Secured by ATTENTION TO EMPLOYEES' WELFARE

*New Plant of Farwell - Dettmers Company,  
Chicago, a Model of Arrangement and Spaciousness*

By GEORGE DUERR

**A** MOST urgent need in the purely managerial end of the sheet metal contracting business is a thorough understanding of and a disposition to utilize the proper arrangement of machines and tools to avoid loss of time and physical energy by the workmen. The contractor places himself under a very great handicap at the outset who does not give consideration to the factors of adequate light, sufficient space between machines and work benches to permit easy handling of work, floors constructed of materials that do not tire the workmen who stand upon them from morning till night, a heating system that keeps the

workshop comfortable while it is occupied—these are all matters, when properly considered, tend to produce efficiency of personnel.

Often we do not realize what a great difference a little attention to these purely mechanical details of the business mean until our attention is called to them by some outsider or we get an inspiration from some one of our more progressive brethren.

An inspiration in this regard is had in the new shop of the Farwell-Dettmers Company, 2617 Fletcher Street, Chicago, into which the company has only just recently moved. In this new shop every considera-

tion has been given to the welfare of the workmen, because it is realized that where the workmen are laboring under difficulties their efficiency is greatly reduced. Their attitude toward their work and toward their employers is not of the nature to make their work all that it should be.

The new shop of the Farwell-Dettmers Company is a one-story, brick structure, with as much of the side walls constructed of glass as is consistent with good engineering practice. Through the center of the roof and running its entire length is a skylight which admits an abundance of light and air and permits

the fumes which arise from the various manufacturing processes to escape immediately. The floor is constructed of wooden paving blocks, having the dual advantage of being less hard on the workmen's feet and less cold than a cement floor would be. Therefore from the standpoint of light, air and comfort the shop is ideal. The building is heated with a warm air furnace operated with a fan and thermostatically controlled, which holds the temperature at the desired height at all times.

Ideal conditions have also been successfully approached in the arrangement of the stock racks, power machines, work benches, the aim being to avoid all unnecessary handling of raw materials and finished products during the process of fabrication and in unloading and loading. The larger machines are placed along the walls and in such positions that the work in process of manufacture passes from one to the other in natural progression. The work benches and small hand machines are placed in the center of the room, with sufficient space between each other and the larger machines as to avoid all confusion in the work. Work passes from the stock racks on from one machine to the other with the least possible lost motion.

In the small stockroom convenient bins and racks are placed so that all stock of rivets, bolts, solder, etc., have a specified place, and no time is lost by the men in searching for supplies with which to carry on the work.

The foreman's domain is located in one end of the shop where the foreman is in plain view of the men at all times and he can see what is going on all over the shop at a glance. The drafting board is also located near the foreman's desk. Communication with the office above is had by means of a miniature elevator which carries papers up and down, thus effecting further economies of time and physical energy. The office itself is a model which would serve as an inspiration to many much larger firms.

But the system does not end here. The paint shop, an integral part of this very modern and flourishing business, is housed in a thoroughly up-to-date corrugated steel structure situated a short distance from the main plant. This segregation is done for the simple reason that it was found that insurance rates on the entire plant would be greatly lessened were such an arrangement to prevail.

It is only natural where perfection in system obtains to a high degree in one feature of the business to find it in others of that business, and the Farwell-Dettmers Company is no exception in this respect. It is found in much of the work done by the company that mass production is possible to a certain degree and a separate department and building has been set off for the carrying on of this work.

And as to the guiding genius who steers this thoroughly modern sheet metal business over the rough places—Harry J. Dettmers—he is active, keenly alert, thoroughly sold on the sheet metal business. But in spite of the urgent demands made upon his time by his own business he finds time to take an active part in many other activities. He is president of the Associated Sheet Metal Employers of Chicago. He is a trustee of the National Association of Sheet Metal Contractors. There are few committees appointed and functioning for the betterment of the industry of which he is not a member or at least is not thoroughly conversant with their work. He is a member of the Architects' Club of Chicago, of the Builders' Club of Chicago, a director of the Chicago Society for the Hard of Hearing, and president of the American Skylight Company.

#### **Quantity Surveyors Meet in New York to Discuss Estimating Methods**

Discussions on topics of extreme interest to the building contractor and all others connected with the building industry are scheduled for the Third Annual Convention and Exposition of the American Institute of Quantity Surveyors at the

Pennsylvania Hotel, New York, N. Y., June 25-27. The Institute was organized in Chicago in 1926 and has already taken a prominent place in the building industry and in solving the problems of both buyer and seller of building construction.

Among the topics on which addresses will be made and discussed are—Methods of surveying, estimating, pricing quantities, preliminary estimates, appraisals, uninvited bidders, unfair competition, etc.

Construction surveying has made such rapid strides during the past few years as the newest and most important economic profession of the construction industry that it has become expedient to supplement the "Third Annual Convention" of the A. I. Q. S. with a two day "Construction Surveyors' Exposition" to be held at the Hotel Commodore, in the heart of New York's construction center, June 28 and 29. The professional surveyors' ranks are fast increasing and the utility of this profession is fundamentally and permanently established. The public, however, as well as the industry, is now alertly inquiring, "What is this new profession, and how can it be of assistance to me? How can it reduce the cost of my building? How will it change unfair competition? How will it increase efficiency and reduce waste?"

The purpose of the "Construction Surveyors' Exposition" is to answer these questions. The Surveyor is prepared to answer them in a convincing manner, and this information will now be available merely for the price of an effort.

It is expected that several hundred persons will attend this two day "Construction Surveyors' Exposition," among whom the construction industry of the United States will be well represented. These representatives of the public, professions, and trades will come, not only to learn the positive utility of the professional surveyors' service, but also to freely express themselves in an instructive way in the interests of economical buying and selling.

# Fear of Overproduction and of Competition Real Cause of Price Cutting

## Increasing Volume Does Not Always Mean Increased Profits

By O. H. CHENEY\*

**G**ENTLEMEN, I am in the market for ten thousand tons of steel sheets. Now please don't pull out your order books and dash wildly at me with a lot of dotted lines and fountain pens. I am a hypothetical prospect with an imaginary order. I would like you to visualize me as one of your customers—all of you to think of me and to see me as a potential customer at the same time. Few of you see a customer at all, and rarely does more than one of you see him at the same time—and that makes me an unusual prospect. Perhaps I may turn out to be a horrible example of a buyer at his worst.

But here I am and you are all thinking about my order at the same time. I should like to study what is going on in your minds as sellers while you are studying me as a buyer.

### No Studying Done When Selling Steel

Some of the things I may say may sound rather extravagant and exaggerated, but then any description of what goes on in man's mind sounds like that. What I say may seem funny only because you are not accustomed to studying yourselves when you are selling steel—and certainly you are not accustomed to studying your competitors at the same time. I am talking to you as if you were out selling rather than back in the mill at the production end or up in the office. Of course, anything I say which you don't like does not apply to you yourself, but to your competitors.

Here I am with this ten thousand ton order, and the first thing you

think of is that you want it. It will probably be the last thing you think of. And how many of you will get far from the thought at any time? How many will really think through to the bitter end the reason why I should give your particular mill the order, or why I should not? How many will refuse this order if my idea of specifications, delivery and price is such as to leave you an inadequate return for your effort?

Well, you take a good look at me and decide that I play golf, and that I'll never beat Bobby Jones.

In this article Mr. Cheney has given not only the production end of the steel industry food for thought, but he has revealed the true cause of many sheet metal contractors and warm air furnace installers being in the difficulties which they now find themselves. This article can be read with profit to everyone in the sheet metal and warm air heating industry.

Obviously, the way to get this order is to take me out to the club and let me win a couple of games. Things don't go well and I lose. Perhaps we had better stick to business, so we join in a couple of rounds of ginger ale. By that time we have known each other for seven years—or so it seems—and we call each other almost anything but our names. In fact, I know you so well there isn't a mill in the world to which I would rather give the order than yours. That's why I'm giving you a chance which I wouldn't give to anybody else. You see, the fellow from one of the other sheet

mills has quoted me 3.95 cents a pound for No. 24 A grade metal furniture sheets, f.o.b. Pittsburgh, and your price is 4 cents. I'd like to give you the order, but you see how it is.

### The Jolly Old Price-Pruning Process Proceeds

You see, all right. You see the mill man back home with his tongue almost hanging out crying for tonnage. Unless something happens, he'll be running 70 per cent capacity—maybe less—and my ten thousand tons would just about make him delirious. About that 3.95 cent quotation—let's pretend I am an honest steel buyer and really did get it from the other fellow. Well, you call the mill on long distance—or tell me you do—and whisper to me that 3.90 will do. Fine, I'm going to think it over for a few days. I not only think it over, I talk it over with a couple of other sheet men. With the air of giving a dying man a drink of water, I tell you that still another fellow wants only 3.85.

That's not so good and you begin to think about what the big boss will say about margins. But you're a good steel man—been in the game, man and boy, for twenty-five years. You tell me that your grade B sheets are as good as the other fellow's A, better in fact. You tell me that I've been a pretty good customer for years and you want me to be satisfied and a good customer in the future. I continue this for a couple of weeks and am on clubby terms with every sheet mill man in the district—and a good many outside. Finally—well, you'll let me have B grade sheets at 3.60, and don't forget, they are better than anybody else's A stuff.

I don't forget. I sign on the dot-

\*Address by O. H. Cheney, Vice President, American Exchange Irving Trust Company, New York, delivered before the National Association of Flat Rolled Steel Manufacturers, White Sulphur Springs, June 5, 1928.



ted line and send a letter of confirmation to the mill. Fortunately, you are out on the road when the vice-president in charge of production receives it—and you're not so crazy about each other, anyway. You got him the order, didn't you?—right from under the noses of the best mills and the best men in the game. He reads my letter—specifications, tolerances, clauses on objections, schedule for delivery. I seem to have taken you seriously that your mill's B grade is better than the other fellow's A—my specifications sound more like A plus. The vice-president in charge of production tears his hair and is joined by the superintendents, who would be tearing yours if you were in range.

#### Pruning Process Pruned Nothing but Profits

Well, let me lower the curtain for a moment to indicate a lapse of time—and intelligence. The accounting department brings the president a report—my ten thousand ton order has netted the stockholders \$791.63—loss!

The figures may not be right for any particular sale, but the story is true, isn't it? At this very moment your salesmen are getting volume for you in this very way, aren't they?

Whose plant is it, yours or your customer's? You needn't answer that question—the figures speak louder than words. Last year twenty leading steel producers, representing over 82 per cent of the ingot capacity of the country, earned 25.9 per cent less than in 1926. On a total stockholders' investment of nearly three billion dollars, these twenty companies earned 5.1 per cent, as against 7.3 per cent in 1926.

Was this because the steel industry did not have enough business? You know that the volume was satisfactory, only a little under that of the previous year.

Did the little plants suffer more than the big ones in this struggle for volume? The leading factor in the industry reported a decline of about 9 per cent in shipments of

rolled and finished steel last year as against 1926 and a decline of 24.7 per cent in net profits. The second company in the industry reported a decline of 21.8 per cent in net income.

In your own field of flat rolled steel, an analysis of the records of nine of the member companies represented in this room shows that the per cent of earnings to capitalization was only 5.27 last year. The year before it was 7.76 per cent. One of our leading members last year suffered a decline in net profits, as compared with the preceding year, of 53.6 per cent.

Are these declines due to rising costs? You know that the steel industry in the last few years has

While specially applying to the problems of the steel industry, this address by Mr. Cheney touches one of the most vital problems of commerce and national prosperity, and should be of special interest to any industry studying cooperation in marketing.

spent hundreds of millions of dollars in improving methods and cutting costs. One company has spent \$150,000,000 in five years and as a result has been able to cut the average cost of production per ton of finished steel by \$7.27. Surely this is a remarkable achievement, one of which the steel industry—American industry—might well be proud.

What happened to that \$7.27? The average billing price of this company per ton of its finished and rolled steel has gone down \$8.60 in the same five-year period. Did this steel producer pay \$150,000,000 for the privilege of giving away \$1.33 with every ton of steel?

Whose steel industry is it?

Has the consumer—have the consuming industries—been profiteering at the expense of the steel industry? A good many steel men have begun to say cynically, "Look at General Motors—look at the profits the automobile industry has

been making." Look at General Motors—it made profits available for dividends of more than \$235,000,000 last year, as compared with the less than \$88,000,000 made by the United States Steel Corporation. Suppose that General Motors had bought all the 3,500,000 tons of finished steel which the automobile industry used, and suppose it had been wildly generous and had paid ten dollars a ton more than you asked for it—it would still have had more than \$200,000,000 profits left.

It is true that the steel consuming industries have made more money than the steel producers. Analyzing the operating finances of a group of over a hundred steel consuming companies in ten leading lines, we find a percentage of earnings to stockholders' investment of 15.3—three times as high as that of the steel producers. In the case of the companies manufacturing automobiles, trucks, and airplanes, the percentage is 24.9; in farm implements and tractors, 10.6, and in office equipment, 15.7.

#### Condition of Unbalance Exists in Steel Industry

It is also true that the decline in finished steel prices has been pretty continuous for the past five years and that they have been during most of that period under the general commodity price level. While other industrial products have been 50 per cent above the pre-war price level, steel has been at less than 40.

The real question is not, therefore, whether the consumer has gained by these price declines or whether consuming industries have been profiting at the expense of the steel producers. The real problem is in the fact that there is a condition of unbalance between industries.

(Continued next week)

#### A. A. Roberts Moves from Highland Park to Macomb, Illinois

A. A. Roberts whose business was formerly located at 366 Central Avenue, Highland Park, Illinois, is now located at 114 West Washington street, Macomb, Illinois.

### Current Activities of the American Construction Council

The increasing field of usefulness of the American Construction Council and its strong appeal to the industry and the public is indicated by a partial list of activities now being conducted by it, as described below:

1. Preparations are actively underway for the holding during this coming winter of a National Construction Institute week to be participated in by all branches of the construction industry and other basic industries that feed or are in turn fed by construction. Leaders in all fields of American business are being invited to participate in this Institute, which is designed to bring before the eyes of the country the practical importance of construction to the entire business fabric of the nation.

2. Preliminary to this National Construction Institute week the council is publishing in book form, by special arrangement with well-known publishers, the selected proceedings and other important papers of the American Construction Council under the title "*Rebuilding America*," which brings the construction industry and its problems before the business interests of the country and the public in a way never before done.

3. As one of the Council's series of pamphlets to home owners on better building and better financing of homes, we have in preparation a new pamphlet on "Reconditioning Your Home." This will follow the same general style as "Six Steps in Building or Buying a Home," which was issued by the Council some time ago and which was so enthusiastically received by both the industry and the public.

4. The Council is beginning a study of land taxation in relation to construction as a part of the work of its General Committee on the Economic Relationships of Construction. A lack in many cases of equitable standards and almost a total lack of uniformity in practices on land taxation both as to existing structures and new construction,

commercial and residential, is becoming widely recognized as a serious detriment not only to business but to the community and state as well, through the impediments to progress that arise therefrom. Through an impartial study it is proposed to gather facts that will furnish the basis for developing constructive standards along these lines. This study is being conducted in conjunction with the Institute for Research in Land Economics and Public Utilities affiliated with Northwestern University.

5. Recognizing the vast importance of the present-day movement for decentralizing industry, with its accompanying commercial, economic and social problems and particularly the need of housing as it affects the wage earner and the employer in outlying and smaller communities, the Council is conducting an exhaustive survey of plans and methods being followed by industry and other organizations for securing adequate housing of proper standards at a fair cost in such industrial communities and centers.

These activities, it will be noted, embrace four fields of service on which the Council is now concentrating the major portion of its efforts: (a) fact-finding in construction economics, (b) clearing house of information for the industry on selected subjects, (c) general publicity and education affecting the industry as a whole, and (d) serving as a common meeting place for the entire industry and the public where all can meet on impartial ground.

### Thank You! Mr. Chandler, We Appreciate the Compliment

TO AMERICAN ARTISAN:

Please mark me up for two years more in the matter of subscription to AMERICAN ARTISAN. I am mailing you my money order in payment thereof. The articles in the issues of AMERICAN ARTISAN have touched the spot. Success to you.

Yours very truly,  
R. I. Chandler.

5857 Figueroa Street,  
Los Angeles, California.

### Michigan Sheet Metal and Roofing Men Prepare Built-up Roofing Specification

Several important developments have followed the adoption of a Standard Specification Outline by the Building Employers of Michigan in convention at Grand Rapids recently. The purpose of the outline, as related in a previous issue, is to group all labor and material items under specific heads in a manner that will standardize the writing of specifications, and leave no doubt in the minds of the various subtradesmen regarding the work that their contracts cover. Among the new developments is the enthusiastic support given the move by the Michigan Society of Architects and the general contractor and subcontractor organizations in the state.

Immediately following the meeting in Grand Rapids, and due in a large measure to the fact that a number of tradesmen were unable to agree on definitions of their own trade terms that affected the writing and interpretation of specifications, these trades were urged to formulate their own codes and standards. According to Lancelot Sukert, president of the Michigan Society of Architects, this suggestion has resulted in the appointment of a large number of committees consisting of general contractors, architects and representatives of the subtrades. These committees have gone to work with a will, and several have completed their work, while others will submit reports that will very shortly bring the move to a comprehensive workable head.

One of the earliest reports to be submitted and adopted was that of the Michigan Sheet Metal and Roofing Contractors. It has been published in a 42-page booklet embodying complete specifications and standards of material and labor for all types of built-up roofing. Plasterers, steel welders and all other trades are working on similar documents. The joint representative committee on lumber is preparing a report clarifying types, grades, sizes and uses.



# Constructing Pattern for Twisted Pipe Met With in Ventilating Work

*Plan and Layout Made by J. S. Redman and Described*

By O. W. KOTHE, Principal St. Louis Technical Institute

**M**ANY of our tradesmen meet with twisted pipe work; that is, pipes that run in a diagonal direction from the accepted position from which we work. This always gives mechanics, young or old, trouble. The geometry is just as hard for each. To get it requires systematic practice on problems that have instructive value.

A year or so ago one of our students, J. S. Redman, who was especially good on double twisted pipe work, prepared for us a series of problems from his work, and those we did not use in the revision of our courses I am submitting for the benefit of our readers. Possibly Mr. Redman can describe the process of development of the problem we show as well as I could rewrite it, and so the solution is as follows:

Before patterns for such a piece of pipe work as the one shown in the sketch can be developed, a correct plan and elevation must be drawn, because the correctness of the plan and elevation will determine the correctness of the patterns. Before starting to lay out this job, in order to make it more plain, assume that Section 1 will be a horizontal pipe when in its proper position; also Section 3 will be horizontal.

Begin the layout by erecting the line A'-P. On this line at any place, as at A, draw the base line of Section 1 at right angles to A'-P. Now set down the length of Section 1, as A to B. On the line A'-P lay out the horizontal distance between the bends or elbows, as B to N. At right angles to A-P and through N draw N-C, equal to the distance elbow C will be set over from elbow B. Now set down the center line C-D of Section 3 at the required angle to Section 2. Extend this center line C-D beyond the end D any

distance, as shown. This completes the center lines for the elevation.

Now draw the outlines, as shown. Below A in the elevation locate A''. About A'' strike a circle the required diameter. Below A'' locate A', the required vertical distance or height between the two horizontal pipes, Section 1 and Section 3. Now draw the line A'-D at right angles to A'-A'' and make A'-C equal to N-C of the elevation and A'-D equal to P-D of the elevation. Then draw the diagonal lines A''-C and A''-D. We must now draw an elevation showing the correct angle of the elbow B of the elevation.

## Obtaining Correct Angles of Elbow B

Extend the base line A of Section 1 to the right, as shown at A-A' Fig. 1. At any place on this line locate A. At right angles to A-A', Fig. 1, erect the line A-B the length of the horizontal pipe. Now take the distance A''-C in the plan and set it down in Fig. 1, as A-A', which is the diagonal distance between the two elbows, and erect the line A'-C' at right angles to A-A'. Make A'-C' in Fig. 1 equal A-N of the elevation, or the horizontal length of these two sections. Now draw the line B-C; which is the correct length of Section 2.

Parallel with A-B, Fig. 1, draw the outlines of the pipe at the required diameter and obtain the miter line O-7. About A strike the semi-circle and divide this into six equal spaces, as shown and numbered 1 to 7. Erect the perpendicular lines through these points to the miter line O-7. This completes the layout for this elbow.

Now if the elevation of Section 3 were parallel with Section 1 there would be no twist in Fig. 2; that is, in the developing lines—for on the

throat line on one end of Section 2 would be the back line of the elbow on the other end; that is, both ends would be developed from the same lines. But in this case Section 3 is not parallel with section 1, therefore, there will be some twist in section 2; that is, the lines we use on one end to obtain the miter for the elbow, B, will be set around from those on the other end, or elbow C.

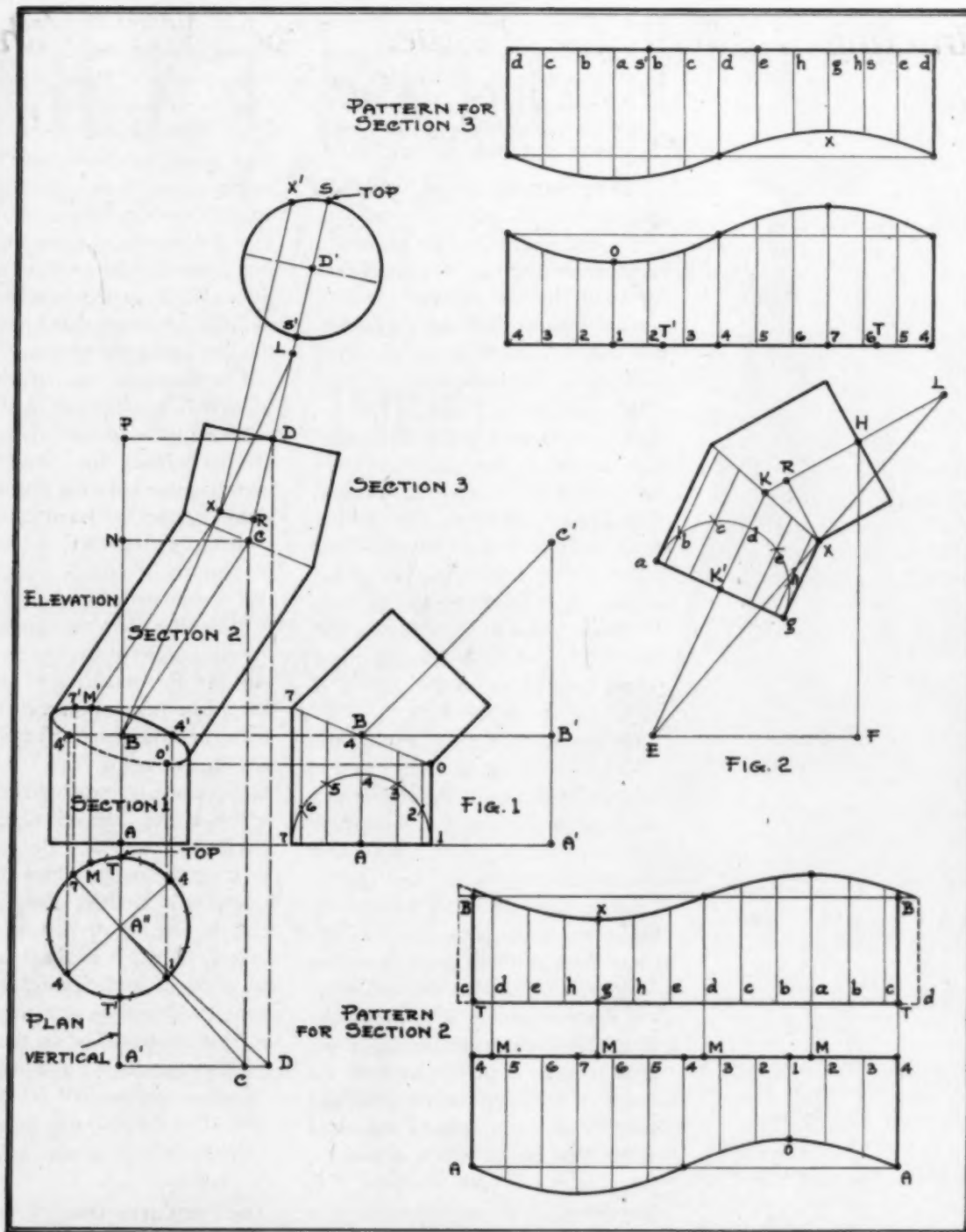
Go back to the plan again and the line A''-C represents the direction, or axis, of section 2, and where this line crosses the circle drawn about A'' will locate the throat and back of elbow B; 1 will be the throat and 7 the back, and the line drawn through A'' at right angles to A''-C will locate the sides of the elbow, as 4 and 4. Now space each one of these quarters into three equal spaces, the same as we did on Fig. 1. On profile A erect lines through these points to the miter line B in the elevation parallel with the center line A-B of section 1. These lines are not shown here as it might confuse the reader later on. But the lines 1-4-7 have been drawn so that it will be clearly understood.

Now where the lines 1 to 7, Fig. 1, touch the miter line O-B-7, Fig. 1, draw lines back over to the elevation through these points and parallel with the base A-A', Fig. 1. Where these lines meet similar numbered lines at B in the elevation will locate points through which trace the line and form the ellipse, as shown.

This ellipse represents the seam or miter line of elbow B as it will appear when the pipe is put together and placed in the proper position, as shown in the plan and elevation. The solid line is the top half and the dotted line is the bottom half of the pipe.

Now before we can obtain the





Pattern for Twisted Pipe

amount of twist needed in section 2 we must locate some point, either the throat or back of elbow C, in its proper location in the elevation, and to find such a point we must first obtain a true angle of elbow C.

#### Obtaining Correct Angle of Elbow C

In Fig. 2 draw the line E-F and make E-F equal to A''-D of the plan, which is the diagonal distance between elbow B and the end of Sec-

tion 3. Erect F-H at right angles to E-F and through F. Now make F-H, Fig. 2, equal to B-P of the elevation, or the horizontal length between the elbow B and the end of Section 3. Now with the trammels set to the correct length of Section 3, which is C to D in the elevation, strike an arc from H to K in Fig. 2 and with the trammels set to the true length of Section 2, which is B to C' in Fig. 1, strike an arc from

E to K in Fig. 2. Where these arcs cross at K in Fig. 2 will locate the center of elbow C.

Now draw the center lines E-K and K to H. Continue the center line K to H, as shown. Erect the base line through H, make the distance K'-K the same as K to H and erect the base line through K'. Draw the outlines, and this is the true angle of elbow C of the elevation.

At K' in Fig. 2 strike a half circle

of the required diameter and space this half circle into six equal spaces, or the same number as in circle A, Fig. 1, and letter these a-b-c-d-e-h-g. Draw lines through these points to the miter line and parallel to line E-K.

### To Obtain the Twist in Section 2

In Fig. 2, with the straight edge on point E and on the throat X, or shortest part of the elbow, draw a line to the center line, K-H, and locate point L, and with the square on the line K-H and on the point X locate the point R on the line K-H. Now as we have just located the line E-L and the throat X upon this line in Fig. 2, we can locate the throat or point X in the elevation by using the line E-L in its proper position in the elevation.

To locate this line in the elevation we must locate points L and R. As the center line C-D of the elevation is horizontal, it is shown in its true length. Also point C is in its proper position, so take the length K-R-L in Fig. 2 and transfer it to the elevation as C-R-L, locating point L. The point B is already located. Now draw the line B-L. This corresponds to the line E-L in Fig. 2. Upon this line X will be located and through point R at right angles to C-L draw the line R-X, which locates the throat X in its proper position.

On the center line C-L, at any place, strike a circle as at D', the required diameter. Parallel with C-L and through X draw a line to this circle and locate X'. Parallel with B-C and through point X draw a line to the ellipse and locate point M'. Now parallel with the line A-B and through M' draw a line to the plan and locate point M. As point 7 is the back of elbow B and point M the throat of elbow C, the distance 7 to M measured around the circle in the plan is the required twist to be used in laying out the pattern for Section 2.

### Laying Out Patterns

Starting first with Section 1, pattern 1 is the same as any elbow work. The lengths are obtained from Fig. 1 for the miter. The

points T' and T would be the vertical top and bottom centers in case a flange was wanted on this end and the distances 1 to T' and 7 to T are measured around the circle in the plan.

Taking pattern 3 next, which is the same in circumference as pattern 1, the lengths for the miter are taken from Fig. 2. Points S and S' would be the top and bottom vertical centers for the flange on this end. X' to S in the elevation equals g to S in pattern 3.

We will now take pattern 2. Erect the line A-A equal to the circumference, square up the sheet and erect the lines A-B. Make the distance A-B equal to B-C' in Fig. 1, and draw the line B-B. Take the distance A-B in Fig. 1 and lay it out on lines A-B of the pattern as A to 4. Draw line 4-4. Divide this line into 12 spaces and through these points draw lines to the line A-A parallel with the line A-B.

Go back to pattern 1, and as the throat is 3 spaces in from the left side, so in pattern 2 the throat will be 3 spaces in from the right side, and this point will be 1. Now take the length of the lines 1 to 7 in Fig. 1 and lay them out on similarly numbered lines in the pattern. Draw the curve through these points, and this completes the end for elbow B.

Take the distance K to K' in Fig. 2 and lay it out in pattern 2 on the lines B-A, as B to T, and draw the line T-T. Now go to the plan and take the distance 7 to M measured around the circle, which is the distance from the back of elbow B to the throat of elbow C, and set this distance down in the pattern on the line 4-4, as shown at 7 to M. As this is the distance between back and throat, it is also the distance between the sides of the elbows, so set it down as shown at 4 to M and also 1 to M. Draw lines through points M to the line B-B parallel with lines B-A. As 7 to M locates the throat, which is marked g-X in Fig. 2, where this line crosses line T-T mark it g. As the space 4 to M is the side of the elbow, mark it in the pattern d, as shown. 1 to M is the back, mark it in the pattern a.

Now, between the points d-g-d-a lay out on the line T-T between these points 3 equal spaces, and mark them as shown, a-b-c-d-e-h-g. Draw the parallel lines through these points as shown, and take the lengths of these parallel lines through these points as shown, and take the lengths of these lines from Fig. 2 and lay them out on similarly lettered lines in the pattern. Draw the curve through these points, and this completes the pattern.

The spaces on the outside of the pattern as c and d are only used to complete the curve at B and B, and are not left on the pattern when putting these patterns together; for elbow B, patterns 1 and 2, the points O and O go together, and for elbow C, patterns 2 and 3, the points X and X go together.

Now check up the patterns and everything is ready to go to the punch. In measuring 7 to M it must be measured on a circle which is the neutral diameter of Section 2, and in measuring 7 to T and X' to S they must be measured on a circle which is the neutral diameter of Sections 1 and 2. Be careful in locating the point M' on the ellipse that you locate it on the right part; that is, the top or bottom. In this case Section 2 is inclined downward to elbow C and Section 2 is horizontal; therefore, the throat X in the elevation will be on the top half of the pipe, likewise M' will be located on the top half of the ellipse, and M in the plan will be on the top half of the semi-circle.

### Do You Carry Out the Spirit of Your Signs?

Many roofing and heating contractors display signs around their place of business, such as "Quick Service," "Satisfaction Guaranteed," "We Are Sure to Please," and so forth. Do they live up to those signs? Anybody can put up signs, but signs aren't worth much unless they are lived up to. A few false steps and the signs are turned into so many jokes. You see, it is doing the little things that the other fellow neglects to do that makes a business stand out.

# SHEET STEEL

*A Boon*

*to*

*Boone, Iowa*

## POP CORN INDUSTRY

*Barns, Elevators and  
Fire Station Covered  
With SHEET STEEL*

*for*

*Fire Protection*



*Fire Station, Boone, Iowa*

THERE is a slogan widely adopted by gas companies and by the American Gas Association, and which has widespread currency, to the effect that "You can do it better with gas."

It means, literally, that for many

heating uses, not only domestic but industrial, in the broadest possible way, gas, all things considered, does a better job.

This writer holds no brief for gas for heating and it is only mentioned here because a paraphrase of

the famous gas slogan can truthfully be applied to sheet steel.

You can do it better with sheet steel—almost invariably.

Limitation of space and a desire not to endanger the patience of the reader militate against a fuller discussion here of all the possibilities of doing it better with sheet steel. A brief array of concrete examples of structural uses only will serve, it is hoped, to make the point without going to tiresome lengths.

When the statement is made that you can do it better with sheet steel there is no intention to insinuate that sheet steel must replace all



*Sheet Steel Covered  
Barn*



other materials for structural purposes. The reader, of course, would, and rightly, resent even the implication that sheet steel is recommended as a general panacea for all structural ills and a solution for all structural problems, or that it can replace other excellent materials in certain applications where they are outstandingly logical.

The reader has a definite conception of the relations of certain types of materials used for structural purposes in industry and he, therefore, understands what is meant when it is said that you "can do it better with sheet steel."

In a great variety of structural applications sheet steel comes immediately to the fore as the logical material to use, all aspects of the job considered: first cost, maintenance cost, appearance, service life, safety and general structural efficiency. When these are all taken into account, it develops in a great variety of instances that sheet steel is the outstanding material for the job.

Come for a moment to Odebolt, Iowa. Odebolt is a nice little city. There are a great many buildings in Odebolt in which sheet steel is used as a structural material in varying extent. But we shall ignore them during his brief journey because Odebolt is declared to be, and probably justly, the popcorn capital of the universe. Popcorn is the *piece de resistance* of Odebolt's com-



### *Pop Corn Elevator Sheet Steel Covered*

merce. The town has a number of popcorn elevators and the object of our mental journey there is to point out that these elevators are covered from foundation to roof with sheet steel. In these storages the popcorn is shelled, fanned and binned to await shipment to the various points of consumer distribution.

Sheet steel is a better structural material for these elevators because it is lower in first cost and as serviceable as any other material in the light of what is required of it. For these buildings must be fire safe—a good fire would pop enough corn to bury the town!—and they must be moisture proof.

One of Odebolt's sheet steel popcorn elevators is shown in these pages. It is one of the smallest of

the group. It is the property of the Odebolt Popcorn Company. Other proprietors of sheet steel covered popcorn elevators in Odebolt are Albert Dickinson & Co., nationally known wholesale seed men, and the Crackerjack Company, whose popcorn confections add to the festive enjoyment of every circus, carnival and fair.

In Boone, Iowa, the city fire station has a sheet steel tower on its roof to support the fire gong and serve as an observation lookout. Some thirty-odd years ago when William Jennings Bryan, the then boy orator of the Platte, was stampeding the Democrats into making free silver a political campaign is-

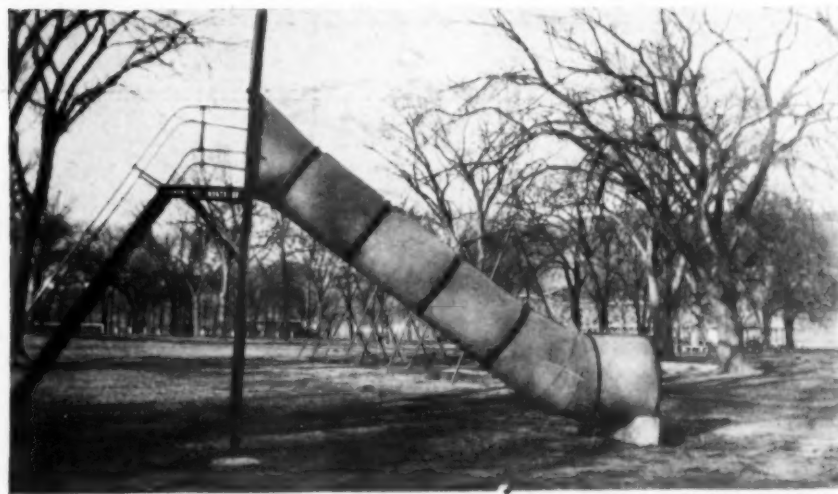
sue, the folks in Boone decided to build a tower on their fire station. They figured on what would be the best way to do the job, and when all angles of the matter were considered it was found that they could do it better with sheet steel. All that has been required to keep the steel covering of the Boone fire department tower in first-class service condition has been a coat of paint, renewed every three or four years. Apparently this steel-covered tower is as good today as the day it was built.

All over the country rural communities abound in sheet steel covered barns. The number is growing continually and substantially. Selecting a typical case at random, we find ourselves upon the farm of

## Child's Sliding Chute of Steel

Clifford Smith, not far from Odebolt, Iowa, where the popcorn elevators are. Mr. Smith has a fine sheet steel covered barn, a picture of which is shown in connection with this article. Mr. Smith learned that he could do it better with sheet steel in the case of his barn, because seventeen years previous to the building of the barn he built a machine shed and covered it with sheet steel. The satisfaction which that earlier building had given so impressed Mr. Smith that he did not even consider any other material for covering his new barn. "We built this barn to last," said Mr. Smith, "and we do not expect to be disappointed. It proved to be economical, too. No lumber was used for roofing or siding. The framing was carefully spaced to conform to the width of the steel sheets, and these were nailed on with eight-penny nails through lead washers."

In the town of Onawa, Iowa, two of the buildings of the Onawa Motor Company are separated by a street. The steam heating plant of the concern is located in the main building, which makes it necessary to convey steam for the building across the street through pipes spanning from one building to the



Courtesy Making Markets

other. To protect the insulation on these pipes and further reduce heat losses, a housing of sheet steel was built. This was given a two-way pitch from the middle for the sake of better appearance and for rapid shedding of rain, and the whole thing was packed with insulating material so that heat losses are entirely eliminated.

What other material could have been used to accomplish this same result at anywhere near comparable cost?

All over the country airplane hangars are being built of sheet steel. It is the logical material for that purpose. As a typical example is the Rickenbacker Airport, a station across the South Dakota line from Sioux City, Iowa, where young flyers go to take training to fit them for commercial aviation. It has a hangar built entirely of sheet steel.

The building is fireproof, lightning safe and will last for many years. It is the ideal shelter for airplanes and is an outstanding instance of a type of construction where "it can be done better with sheet steel."

Taking their idea, probably, from the tubular sheet steel fire escapes now so widely used on school buildings, the park commissioners of Sioux City, Iowa, developed a tubular sheet steel sliding chute for the use of very small children. A picture of this is shown adjacently. The chute is built of sheet steel sections and serves as a safeguard against the falls that are not infrequent with ordinary slides, and at the same time gives the little tots all the thrills that make sliding such a popular pastime with children. Again steel did it better.

Warren Kibby, a thresherman of Bayard, Iowa, has equipment valued at about \$3,500 or \$4,000. It is his high grade threshing outfit. The threshing season is, of course, comparatively short and this raises the problem of economically housing the threshing outfit between seasons.

Like so many other threshermen have done, Mr. Kibby built the shed for his equipment of sheet steel, thus safeguarding it against ex-

(Continued on page 103)

## Steam Pipe Housing of Sheet Steel



Courtesy Making Markets

**STRANGE AS IT MAY SEEM!**

**GO WHERE YOU WILL—**

*-the chances are you'll find something from the "Osborn" line. In the Home, on the Home, in the Factory, on the Farm, on the Highways, Land or Sea, in the Air, in fact most everywhere that People Live, or Ride, or Walk, there's something from the "Osborn" Stock.*

THE J. M. & L. A.

**OSBORN & CO**

CLEVELAND—BUFFALO

**"Everything Used in Sheet Metal Work"**



(Continued from page 101)  
posure, which causes greater depreciation than the natural wear of threshing service, and protects it against any possibility of fire.

Space permitting, instance after instance almost without limit could be recited to illustrate the remarkable facility of sheet steel as a material for building a great variety

Company, known as the 120 series Cincinnati all steel press brake.

The manufacturer says it has capacity to make right angle bends at one stroke of the machine in  $\frac{3}{8}$  inch steel plate, 8 feet long, over a 3 inch die opening or  $\frac{1}{4}$  inch steel, 12 feet long, over a 2 inch die opening, without overload.

While this company has been

brake now built by this company.

The bed and ram plates are 3 inches thick. The bed extends below the floor line from 18 inches to 28 inches, depending upon the length of the machine. The design of the machine reduces deflection to a minimum—in fact deflection has been practically eliminated.

Due to the method of mounting the bed and the divided connecting rod—a patented feature—the loads are carried directly up and down the center line of the housings.

Other refinements are automatic oiling, anti-friction bearings on high speed shafts and in the mounting of the flywheel, special disc clutch, large over-size brake drum, liberal depth of bed and ram plates, and screws of high carbon, high nickel steel, cut with buttress thread.

A dove tail slot is planed along the length of the bed, both front and back, for attaching gauges or other fixtures.

The ram is raised and lowered with an independent motor drive, which is standard equipment and included in the price.

The machines are arranged for motor drive; and the motor is connected by Tex Rope drive to the flywheel.

Standard lengths furnished in this series range from 6 feet 6 inches between the housings, with a die surface of 8 feet, to 12 feet between the housings, with a die surface of 14 feet.



Sheet Steel hangar at Rickenbacker Airport near Sioux City, Iowa.

of structures to serve an almost endless number of uses. The random examples cited are all taken from a comparatively small, typical, semi-rural area, the counterpart of which can be easily found anywhere else in the country, in which are hundreds of structures in connection with which sheet steel is used. In almost every case it has been used because, everything considered, it does the job as well as or better than some other material, and does it more economically.

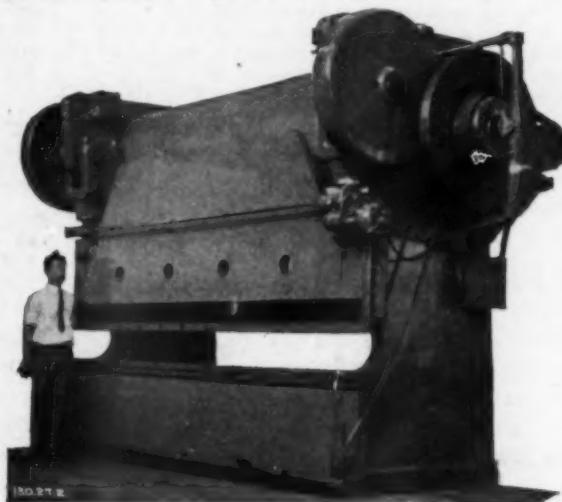
What is true of sheet steel in these structural applications is equally true of it for the fabrication of a tremendous number of things, ranging all the way from household appliances to the most extensive industrial layouts.

One of the most important features of sheet steel is its mechanical adaptability, and both sheet metal contractors and fabricators should keep it in mind. For using sheet steel to the limit of its possibilities will mean for most, and for contractors particularly, an increase in the variety of applications now being made.—*Making Markets.*

#### The New 120 Series Cincinnati All Steel Press Brake

A press brake of new design and size was placed on the market recently by the Cincinnati Shaper

using rolled steel plate in the manufacture of their press brakes for a number of years, the construction of this machine is different in that the housings are made of a single plate,  $\frac{1}{4}$  inches thick, instead of double plate, box construction. When these machines were first designed, it was necessary to use two 2 inch plates, welded and riveted together, to build a housing 4 inches thick as it was impossible to get plates of the required size and thickness rolled flat enough for this type of construction. At the present time, however, due to the co-operation of the mills, massive plates are being rolled as thick as 6 inches, perfectly flat. This has made possible the new type of press



Illustrating the Shaper.

## Random Notes and Sketches

By Sidney Arnold

*"The essence of humor is sensibility. It is a tender feeling with all forms of existence."—Carlyle*

I had a very enjoyable visit on Thursday morning with Paul L. Biersach, President of the National Association of Sheet Metal Contractors, in the offices of Friedley-Voshardt Company, 733 South Halsted Street, Chicago. Mr. Biersach states that affairs in the national association are progressing in a manner highly satisfactory to the Board of Directors. He was very well pleased with the turn out at the Cleveland convention and feels that the association has accomplished a great deal of good for its members.

\* \* \*

Included in my visits also week was one to the office of J. L. Block, Inland Steel Company, and to Andy Durr, A. Durr & Company, 1937 Walnut Street, Chicago. Both were very pleasurable indeed.

\* \* \*

### The Seller Sold

Into the shop of a well-known seller of second-hand books in Chicago, there walked, a day or two ago, E. H. Petsche, Akkrat Ventilators, Inc., who is a great lover of books, carrying three ancient volumes, bound nicely in calf, but a little battered. "How much for these?" said he to the bookseller. The bookseller took the volumes with the professional air of depreciation adopted whenever a seller comes into a second-hand shop. "I am afraid they are quite unsalable," said he gravely: "the binding is good, but it wants mending. I can only offer a few pence for them."

"No!" cried Mr. Petsche, "I don't want to sell. I have taken them off your stand outside. I want to buy them!" Presently the bookseller recovered his breath and his sense of humor. "Well," he laughed, "after what I have said I can't charge you more than ninepence." So Mr. Petsche got a bargain.

### Noble Decision

A. R. "Steve" Stevenson, Interstate Machinery Co., Chicago, the disgusted client, said to his lawyer: "Your fee is exorbitant. It didn't take you a day to do the work."

"It is my regular fee," said the lawyer. "I am not charging you for time, but for the cost of my legal education."

"Very well," said Steve, "give me a receipt for the cost of your education so that the next man won't have to pay for it."

\* \* \*

"Before coming to you I went to Dr. Suarez," said Fred Heads, Chicago branch, Hart & Cooley.

"What silly advice did he give you?"

"He told me to come to you."

\* \* \*

John Lorenz, Chicago Furnace Supply Co.: "What have you a knot in your handkerchief for?"

John C. Dasso, Sales Manager, Chicago Metal Manufacturing Co.: "My wife put it there to remind me to post a letter."

"And have you done so?"

"She forgot to give it to me."

\* \* \*

### A Good Yarn

Clerk (showing R. R. Wallace, Sales Manager The Colburn Heater Co., golf stockings): "Wonderful value, sir. Worth double the money. Latest pattern, fast colors, hole-proof, won't shrink, and it's a good yarn."

Mr. Wallace: "Yes, and very well told."

\* \* \*

### The Wise Man Dines

"Ah! The worm has turned!"

"How so?"

"A few minutes ago you saw a rooster filled with sage; now you see a sage filled with rooster."

### Be Sure You're Right, Said Grant. We Don't Know About Going Ahead Then

They say that a certain young man was recently bowling along the road right merrily in his flivver when he caught up with a party of children on their way to school. He asked them if they wanted a lift, and was immediately boarded by such a mob that one little girl had to sit in his lap. As they drove along he carried on the following conversation with the little girl in his lap:

"Do you like school?"

"Yes, sir," she lisped.

"Do you go every day?"

"I haven't missed a day this year."

"Good little girl!" exclaimed the driver, kissing her soft cheek. "Do you like your teacher?"

"Yes, sir," said the girl. "I'm the teacher."

And the flivver came near going into the ditch.

\* \* \*

### Walled In

The night was dark, and the hour late, when the lone merry-maker advanced unsteadily toward the concrete lamp-post. Gingerly touching the rough surface he felt about until assured of a solid support and then leaned back, resting. After a few minutes, deciding to again pursue his alcoholic path, he turned and felt carefully about the surface of the post. Round and round he walked, never taking his hands off the concrete. Amazement gave way to despair and at last, sinking down on the pavement, he gasped:

"My G—d, I'm walled in."—*Bottles.*

\* \* \*

A young woman of fair complexion remarked to her escort that all her ancestors were blonds.

"Ah," he returned wittily, "you come of preferred stock."

\* \* \*

"I wonder if you could tell me where I could get a drink?"

"Sir, I am only a conductor. You are the fourth man to mistake me for a policeman this afternoon."

## Getting Where We Want to Go— In Popularizing Warm Air

THE warm air furnace industry is confronted at the present time with a problem of marketing which demands prompt and definite attention. There is no longer any use in refusing to face conditions as they are and to call a spade a spade.

In certain areas of the country the demand for warm air heating has got to a point where some furnace installers have not sold a single job during the current year. This condition is not prevalent because of a lack of building activity, but because the public is not being awakened to the real merit of warm air heating. In the meantime competitive systems are doing a land office business in those areas.

In order to combat the inroads of competition, the warm air furnace industry has only one avenue of procedure and that is a comprehensive, consistent national advertising campaign, with proper tie-up of the warm air furnace installers throughout the country.

Immediately we hear the manufacturing interests saying that it is impossible to get installer tie-up cooperation. Here are some of the objections which dealers have to advertising tie-ups with manufacturers and to which manufacturers should give thought:

1. Many dealers feel that the advertiser is not warranted in asking the dealer to spend his own money for direct tie-up advertising. They feel that a portion of the money expended by the advertiser should be used in listing their local dealers in the large factory copy and that the advertiser can more readily expect the dealers' cooperation by so doing.

2. Dealers say that while they appreciate the desirability of tying-up with a national campaign, their margin of profit is so small that the expenditure is unwarranted.

3. Many smaller dealers in outlying shopping centers advance the argument that they are benefited by only that portion of the newspaper circulation that is distributed in their immediate neighborhood, yet they are required to pay rates based upon the entire circulation.

4. Then we have the dealer who refuses to tie-up unless his advertisement is given position preference over the advertisements of his competitors.

Never-the-less there are ways in which the thing can be worked out to the satisfaction of all. This problem of dealer tie-up is not peculiar to the warm air heating industry. Other industries have had it and have successfully solved it. For instance:

Let us view the Goodyear Tire tie-up which ran in April as one of the most successful handled in the Los Angeles Times. The Goodyear copy ran 14 inches on five columns placed in the lower left hand corner of a page, while the remaining three right hand columns (full length) were devoted to 18 Goodyear dealers, eight in Los Angeles proper, the other ten in suburban centers. Each dealer's space averaged one and one-eighth inches across the three columns, with large Goodyear signature cut topping the list. In order to make a success of this campaign, it was imperative that the dealers were entirely sympathetic and responsive to the campaign.

It will be found that retailers are far more willing to tie up with large space national advertising than with small space campaigns.

The reason is a human one. The dealer figures his space should only be proportionate to the national copy. To ask him to run 100 lines when the national advertisement is 100 lines or even 500 lines is to his mind to ask him to carry too much of the load.

However, there is a point here that has escaped many national advertisers. Keeping this idea of proportionate space in mind, there is no reason why the national advertiser who does use only 100 or 200 line copy should not make an effort to get dealers to run 10 line ads to tie up. It has not been done simply because the customary thing is to think of tie-up advertising in terms of large space. And yet there is no reason why a very valuable amount of tie-up copy could not be obtained by any national advertiser. Dealers nearly always want to buy the minimum. Make it possible for them to do so. This plan could be successfully sold to furnace dealers.

Another instance of a successful dealer tie-up was the case of a campaign run for Brunswick Balke Colender Company when dealers in Chicago and in towns throughout the territory where the *Chicago Tribune* concentrates its circulation bought 10 lines of space in the Tribune and in their local papers for every line placed by the company in the Tribune.

Again in April, 1926, the Williams Oil-O-Matic was able to get dealers to run 10,000 ads which the Williams' dealers paid for. These were the result of a clause in the franchise requiring such co-operation.

A more recent instance is the Sparton Radio people who ran 17,000 lines in the Tribune in the last four months of 1927 and dealers ran 5,300 lines for which the dealers themselves paid.

There is no logical reason why the National Warm Air Heating Association should not get together with the local warm air heating associations of the larger cities and work out similar advertising programs.

In the case of Chicago, for instance, those men are at the present time working out a sign for use on buildings which will cause passers-by to concentrate their attention on it and ask questions about the warm air heating system.

The National Warm Air Heating Association and the Greater Chicago Warm Air Heating Association could very easily enter a co-operative advertising campaign built around the "Modern Heat for Health" idea which the Chicago boys intend to incorporate into their sign. It is by means of such cooperative advertising as this that the industry is going to get where it wants to go.

It is hoped that the Better Business Committee of the National Warm Air Heating Association will give this matter their serious consideration.

*George J. Duerr*

EDITOR



## *R. C. Walker Heads New Furnace Company at Columbus, Ohio*

*Will Manufacture Steel Boiler Plate  
Furnaces at 25,000 Annual Capacity*

THE Midland Furnace Company, with offices at 735 Huntington Bank Building, Columbus, Ohio, is making its bow in the production end of the warm air heating fraternity this week, with R. C. Walker, President and General Manager. The new company is to manufacture steel boiler plate furnaces of a high grade principally, but there will also be included in the production several other grades of the product, all of which will carry the 10-year guarantee.

The new company is organized with an authorized capitalization of \$750,000 and has acquired the plant, assets, merchandise, and good will of the Marshalltown Heater Company, Marshalltown, Iowa. In addition to the acquisition of this plant, the company has taken an option on several 12 to 16-acre tracts of land. One of these will be selected by July 1 of this year upon which a building of sufficient capacity to permit the manufacture of 25,000 heaters per year will be erected. The work on this building will begin so as to be completed by December of this year.

As mentioned heretofore, R. C. Walker will be President and General Manager of this new company. Mr. Walker is well acquainted in the warm air heating industry and has a thorough knowledge of the industry and of the manufacture of warm air heaters. He is at present 44 years of age, and has been associated in various capacities in the industry for the past 28 years. During these 28 years he has run the gamut of work in the industry. Starting out as a tinner's helper, he became journeyman tinner. From that station he held the positions successively of city salesman, traveling salesman, salesmanager. For the eight years prior to his resignation effective January 1, 1928, from the Meyer Furnace Company, Pe-

oria, Illinois, he was General Manager of that company. He is in the true sense of the word a self-made man, and deserves all the bouquets his friends will now shower upon him.

Mr. Walker's activity in warm air



R. C. Walker

heating association work during the past six or eight years is well known to all in the industry. He has fought constantly for the best practice in the industry—better methods, friendly competition and good business ethics.

He was President of The Midland Club, a warm air furnace manufacturers' association for two years, also chairman of the steel furnace manufacturers' division of that association, member of the publicity committee of The National Warm Air Heating Association.

Mr. Walker has a host of friends in all phases of the warm air heating and sheet metal industries and scattered from coast to coast. Even dealers who handle competitive lines know and welcome him into their

places of business whenever he visits them.

The new company enters the production of warm air heaters under the most auspicious circumstances, and it is Mr. Walker's intention to augment this favorable position by surrounding himself with the best of heating men available in the industry. We wish him the best of success in his new undertaking and in this we are sure that his many, many friends in all parts of the country will join us.

### **Metal Branch National Hardware to Meet in October at Atlantic City**

The thirty-fourth annual convention of the National Hardware Association of the United States will be held at Atlantic City, N. J., Monday, October 15th, to Thursday, October 18th, with headquarters at the Marlborough-Blenheim.

The convention will open on Monday evening, October 15th, in joint session with the American Hardware Manufacturers' Association, and the speaker of the evening will be an outstanding national character.

In addition to the regular sessions of hardware wholesalers, meetings will be held by the Metal Branch, which includes distributors and manufacturers of sheet metals, and by the Accessories Branch, consisting of manufacturers of automobile accessories, electrical appliances, radio and radio supplies.

Because of present day problems of distribution, members are looking forward to the convention with greater interest than ever before and a large attendance is expected.

Arrangements are being made for reduced railroad rates, details of which will be furnished later.

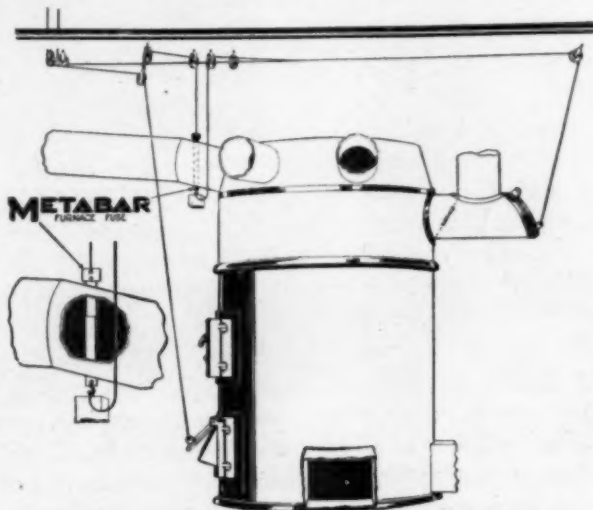
### **Travers Daniel, Jr., Grand Rapids, Now Representing International Heater Co.**

Travers Daniel, Jr., 817 Merritt street, S. E., Grand Rapids, Michigan, has accepted a position with the International Heater Company, Utica, New York, covering the states of Michigan and Indiana.

### A New Safety Fuse for Furnaces Now on Market

The National Regulator Company, Chicago, are introducing a new specialty which should be greeted with considerable acclaim by furnace manufacturers, dealers and contractors.

It is known as Metabar furnace fuse—a fusible link which couples into the chain controls of draft and check dampers, through a hot air riser, which melts, and thereby dis-



Illustrating the Device

connects, if the furnace becomes overheated.

The accompanying illustration shows the method of installation and hook-up. The melting point of Metabar is 250°. If the draft is left open too long (either through oversight on hand controlled furnaces, or through failure of an automatic system) and air in the hot air pipes reaches 250°, which is a decided danger point, the Metabar furnace fuse will melt, thereby closing the draft door and opening the check.

Metabar is easily renewable by fusing the two pieces over the flame of a match.

The price of Metabar to dealers and contractors is \$3.00, complete with chain, weight and pulleys. The suggested retail price to furnace owners is \$5.00. It is easily installed by any handy man without special tools.

Complete information can be had from the National Regulator Company, 2303 Knox avenue.



### "Allen Air-Turbine" Ventilator

From Ashland Sheet Metal Works, 3854 North Ashland Avenue, Chicago, Illinois.

Can you tell us who makes the Turbine Rotary Ventilator?

Ans.—Allen Air Turbine Ventilator Company, 14th and Lafayette, Detroit, Michigan.

### "Haynes" Humidifier Valve

From Leo H. Barrett, Olean, New York.

Please tell me who makes the "Haynes" Automatic Humidifier Valve.

Ans.—W. J. Haynes Company, 326 West Sixth Street, Kansas City, Missouri.

### "Swartwout" Ventilator

From A. V. Hlava Hardware Company, Ravenna, Nebraska.

We should like to know who makes the "Swartwout" ventilator.

Ans.—The Swartwout Company, 18511 Euclid Avenue, Cleveland, Ohio.

### Walnut Finished Tin Plate

From W. J. Tritz Hardware Company, 505 South Central Avenue, Burlington, Iowa.

Where can we buy tin plate with a walnut finish?

Ans.—American Can Company, 104 South Michigan Avenue, and O'Cedar Corporation, 4501 South Western Avenue; both of Chicago, Illinois.

### "Long Arms"

From W. B. Jordan and Son, 510 Fifth Street, Lynchburg, Virginia.

We will appreciate it if you will tell us where we can buy "long arms," which are used for taking cans and articles from shelves without having to get a ladder.

Ans.—L. Gould and Company, 700 West Lake Street, Chicago.

### Roofing Specifications—Carey's and Barrett's

From Arrowhead Sheet Metal Company, 315 Fourth Avenue, International Falls, Minnesota.

Where can I purchase the following roofing materials: Carey's specifications and Barrett's specifications?

Ans.—You can secure Carey's from Philip Carey Company, 2100 Fullerton Avenue, Chicago, and Barrett's from The Barrett Company, 216 West Monroe Street, Chicago.

### Address of National Fire Protective Association

From Atlas Roofing Company, 134 Washington Street, Newburgh, New York.

Can you tell us where the National Fire Protective Association is located?

Ans.—40 Central Street, Boston, Massachusetts.

### Britannia and Old English Pewter Metal

From J. G. Hudson, 4 Alden Street, Boston, Massachusetts.

Where can I obtain Britannia and old English Pewter metal in sheets, 16 and 20 gauge?

Ans.—Hoyt Metal Company, Boatmans Bank Building, St. Louis, Missouri; United American Metals Corporation, Brooklyn, New York, and White Metal Rolling and Stamping Corporation, Brooklyn, New York.

### "Fosco" Ventilator

From Walter A. Sargent, Pekin, Illinois.

Who makes the "Fosco" copper ball bearing suction ventilator?

Ans.—F. O. Schoedinger Company, Columbus, Ohio.

### Wire Furnace Cleaning Brushes

From Snyder and Lehen, 1630 East Main Street, Lafayette, Indiana.

Please tell us who manufactures wire bristle furnace cleaning brushes with twisted wire handles.

Ans.—Theo. B. Robertson Products Company, Incorporated, 700 West Division Street, Chicago, Illinois.

# Chicago and the East Resist Usual Summer Dullness in Steel Market

## *Pig Iron Weakness Disturbing; Nonferrous Metals Unchanged*

**R**ESISTANCE to the oncoming summer dullness in steel is more pronounced at Chicago and in the East than in the Pittsburgh and northern Ohio districts, helping materially to temper the downtrend in both sales and production. Steel-making as a whole continues somewhat heavier than a year ago, thus thinning down backlogs, but the latter are not a safe criterion of the industry because the uncertain price situation has deterred third quarter contracting.

The decline of 9.5 per cent in steel ingot output in May and the shrinkage of 455,311 tons in the unfilled orders of the United States Steel Corp. as of May 31 have dissipated some of the encouragement derived from the good showing of pig iron last month, yet the seasonal strength of the steel industry is marked. With half of June past, it is apparent that the month's pig iron total will approximate last June while ingot production will almost certainly be heavier. Recent weakness in basic pig iron in the Mahoning valley is a disturbing factor.

Building barely holds to the seasonal level and the oil country is a dry hole for iron and steel. It is the aggregate of small day-to-day orders that maintains mill schedules.

Pittsburgh district sheet mills have given more ground, being down to a 70 to 80 per cent operating rate. Practically all tonnage outlets are lighter buyers. Automotive industry needs for full-finished sheets maintain Mahoning valley mills at 85 per cent. Chicago mills feel the dearth of the lighter grades. Competition for galvanized sheet business is the sharpest and prices are commensurately variable. Some second half tin plate business is being placed at first half price.

Steel corporation subsidiaries are

operating this week at 79 per cent, compared with about 83 per cent last week, while the entire industry averages 76 to 77 per cent. The Chicago district rate is 87 to 88 per cent, Youngstown 70 to 75 per cent, and Pittsburgh about 70 per cent.

### **Pig Iron**

At Pittsburgh buyers of basic iron, both consumers and middle interests, offered in the past week to purchase 5,000 and 10,000 tons if given the same price that recently was developed. A valley steelworks interest refused to duplicate its former selling price of \$15.35, valley, and quoted \$16.00. This figure is also quoted by merchant interests, and no sales were made. Bessemer iron was sold in small lots at \$17 and \$17.25, valley, but users generally are deferring action on third quarter requirements.

A few large inquiries for third quarter and for last half are before the Chicago market, but the majority of melters are covering only immediate requirements. Consequently the spot market continues active and it is indicated by shipments, which are continuing at approximately the rate of the past two months that the foundry melt in this district is steady. The market is holding firm to the west of Chicago, which has a steadying effect on the Chicago-Milwaukee market of \$18, base, Chicago furnace.

Production and delivery of pig iron at Birmingham during June will be steady, the probable make for the month having been sold. Delivery in a few instances will extend into July. Makers say the base price, \$16, will be continued through July, at least. Ten blast furnaces are on foundry iron, six on basic and two on special brands.

### **Copper**

Copper and its products held unchanged on the basis of 14.75c, Con-

necticut. Buying was light in the domestic market. Secondary copper products and scrap continued strong, with casting and brass ingot prices going up after the latter had been slow to respond.

### **Tin**

Buying of tin by consumers has continued light except on one or two active days. Meanwhile, stocks here continue of good size and Singapore is selling Straights tin freely. All indications are that output will continue indefinitely at the present high rate, but consumption probably is nearing the end of its largest season for this year.

### **Zinc**

Prime western is remarkably firm at 6.15c, East St. Louis, although buying has been only of modest size. Back of this situation is a firm ore market. Moreover there is a general certainty among the producers that galvanizers have unusually low stocks and will be forced into the market soon.

### **Lead**

Lead has been active lately, though buying the past few days has not been quite so large.

### **Solder**

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$31.00; Commercial 45-55, \$28.00; plumbers', \$25.00, all per 100 pounds.

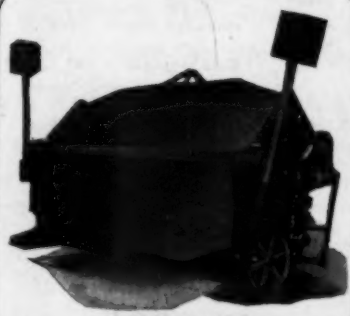
### **Old Metals**

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$15.50 to \$16.00; old iron axles, \$23.00 to \$23.50; steel springs, \$16.50 to \$17.00; No. 1 wrought iron, \$11.50 to \$12.00; No. 1 cast, \$12.75 to \$13.25; all per net tons. Prices on non-ferrous metals are quoted as follows, per pound: Light copper, 9¾ cents; zinc, 3½ cents; cast aluminum, 12¼ cents.



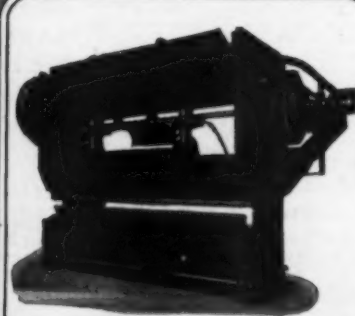
## CHICAGO STEEL BENDING BRAKES AND FORMING PRESSES

The perfected result of over 30 years experience in the manufacture of sheet metal bending machines. Over 25,000 machines in use.



POWER BRAKE

Hand Brakes  
Cornice Brakes  
Power Brakes  
Box and Pan Brakes  
Forming Presses  
Special Brakes and Presses



FORMING PRESS

The most complete and up-to-date line of sheet and plate bending and forming machines in the world. Lengths, 3 to 16 feet, with capacity to bend from the lightest metals up to 3/4 in. plate, cold.

**DREIS & KRUMP MANUFACTURING CO.**

4 Loomis Street • Chicago

# If

it's made of Sheet Metal or it's used in working Sheet Metal and

# You

don't know where to get it—

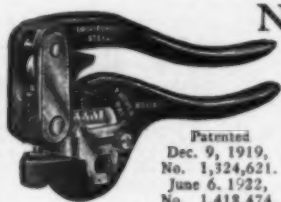
Write to the Notes and Queries Dept. of

**AMERICAN ARTISAN**

## HYRO

No. O. X. PUNCH

*Small but Powerful*



Patented  
Dec. 9, 1919,  
No. 1,324,621.  
June 6, 1922,  
No. 1,419,474.

Capacity—1/4" hole in 14 gauge steel—punches to center of 2 1/2" circle—measures 8" overall—weighs but 2 3/4 lbs. Front pointer—Side Gauge—Punch with centering tip—Six stock sizes of punches and dies, 1/8", 5/32", 3/16", 7/32", 1/4" and 17/64".

No. X. X. PUNCH

*Wide Open Jaws*

Combination bench and hand punch—unusual deep throat, 3 1/2" deep x 2 1/8" high—equipped with adjustable back gauge, regulating depth of work—Automatic stripper—Capacity in steel, 1/4" in 14 gauge, 3/8" in 16 gauge, or 17/32" in 18 gauge—measures 9" overall—weighs 4 1/2 lbs. Fifteen stock sizes of round punches and dies from 1/8" to 17/32".



Patented April 6, 1922,  
No. 1,411,800.

Your Jobber Carries Them

**HYRO MANUFACTURING CO., Inc.**  
202 VARICK ST. NEW YORK

# Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

## METALS

PIG IRON	
Chicago Fdy., No. 2	\$18.00
Southern Fdy. No. 2	22 91
Lake Superior Charcoal	27 94
Malleable	18.00

FIRST QUALITY BRIGHT TIN PLATES	
1C 20x28 112 sheets	\$35 10
IX 20x28	29 60
IXX 20x28 56 sheets	16 20
IXXX 20x28	17 55
IXXXX 20x28	18 95

TERNE PLATES	
IC 20x28, 40-lb. 112 sheets	\$36 00
IX 20x28, 40-lb. 112 sheets	27 75
IC 20x28, 25-lb. 112 sheets	31 15
IX 20x28, 25-lb. 112 sheets	23 80
IC 20x28, 20-lb. 112 sheets	19 55
IV 20x28, 20-lb. 112 sheets	22 05
IC 20x28, 15-lb. 112 sheets	18 05

"ARMCO" INGOT IRON PLATES	
No. 3 ga. up to and including 1/4 in.—100 lbs.	\$4 55

COKE PLATES	
Cokes, 30 lbs., base, 20x28	\$13 60
Cokes, 30 lbs., base, 20x28	13 60
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC	14 30
Cokes, 135 lbs., base, IX	16 40
Cokes, 155 lbs., base, 56 sheets	9 20
Cokes, 175 lbs., base, 56 sheets	10 05
Cokes, 195 lbs., base, 56 sheets	10 90

BLUE ANNEALED SHEETS	
Base 10 ga. ....per 100 lbs.	\$3 50
"Armco" 10 ga. ....per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK	
No. 18-20.....per 100 lbs.	\$3 75
No. 22.....per 100 lbs.	3 90
No. 24.....per 100 lbs.	3 95
No. 26.....per 100 lbs.	4 05
No. 27.....per 100 lbs.	4 10
No. 28.....per 100 lbs.	4 20
No. 29.....per 100 lbs.	4 35
No. 30.....per 100 lbs.	4 45

"ARMCO" GALVANIZED	
"Armco" 24.....per 100 lbs.	\$5 15

GALVANIZED	
No. 18.....per 100 lbs.	\$4 30
No. 18.....per 100 lbs.	4 45
No. 20.....per 100 lbs.	4 60
No. 22.....per 100 lbs.	4 65
No. 24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	5 05
No. 27.....per 100 lbs.	5 15
No. 28.....per 100 lbs.	5 30
No. 30.....per 100 lbs.	5 70

BAR SOLDER	
Warranted 50-50.....per 100 lbs.	\$32 25
Commercial 45-55.....per 100 lbs.	29 25
Plumbers.....per 100 lbs.	36 25

ZINC	
In Slabs.....	\$ 8 50

SHEET ZINC	
Cask Lots (600 lbs.).....	\$12 25
Sheet Lots.....	12 25

BRASS	
Sheets, Chicago base.....	18 1/2 c
Mill base.....	18 1/2 c
Tubing, brazed base.....	27 1/2 c
Wire, base.....	18 1/2 c
Rods, base.....	18 1/2 c

COPPER	
Sheets, Chicago base.....	24 1/2 c
Mill base.....	23 1/2 c
Tubing, seamless base.....	25 1/2 c
Wire, No. 8, B & S Ga.....	19 1/2 c
Wire, No. 10, B & S Ga.....	19 1/2 c
Wire, No. 11, B & S Ga.....	20 1/2 c
Wire, No. 3, B & S Ga. and heavier.....	19 c

LEAD	
American Pig.....	\$7 30
Bar.....	8 30

TIN	
Pig Tin.....per 100 lbs.	\$58 00
Bar Tin.....per 100 lbs.	59 00

## HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS	
Paper up to 1/16.....	6c per lb.
Roll board.....	6 1/2 c per lb.
Mill board 3/32 to 1/2.....	6c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$5 00 per roll

BRUSHES	
Furnace Pipe Cleaning Bristle, with handle, each	\$0 75
Flue Cleaning Steel only, each.....	1 25

BURRS	
Copper Burrs only.....	40-2 1/4 %

CEMENT, FURNACE	
American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora.....per 100 lbs.	7 50

CHIMNEY TOPS	
Adams' Revolving	
Wt. Doz. Price Doz.	
4 in.....21 lbs.	\$11 00
6 in.....24 lbs.	11 50
7 in.....30 lbs.	13 50
8 in.....33 lbs.	15 00
9 in.....51 lbs.	16 50
10 in.....56 lbs.	18 00
12 in.....66 lbs.	22 00
14 in.....110 lbs.	36 00

CLINKER TONGS	
Each.....	\$0 75
Per doz.....	8 40

CLIPS	
Damper No-Rivet Steel, with tall pieces, per gross.....	\$9 50
Rivet Steel, with tall pieces, per gross.....	7 50
Tall pieces, per gross.....	2 40

COPPERS—Soldering	
Pointed Roofing	
3 lb. and heavier.....per lb.	40c
2 1/2 lb.....per lb.	45c
2 lb.....per lb.	48c
1 1/2 lb.....per lb.	55c
1 lb.....per lb.	60c

CORNICE BRACKES	
Chicago Steel Bending	
No. 1 to 6B.....	Net

CUT-OFFS	
Gal. plain, round or cor. rd.	
26 gauge.....	30%
28 gauge.....	35%

DAMPERS	
"Yankee" Hot Air	
7 inch, each 20c, doz.....	\$1 60
8 inch, each 25c, doz.....	2 20
9 inch, each 30c, doz.....	2 80
10 inch, each 32c, doz.....	3 20
Smoke Pipe	
7 inch, doz.....	\$1 60
8 inch, doz.....	2 20
9 inch, doz.....	3 00
10 inch, doz.....	3 75
12 inch, doz.....	4 50

ADAMS No. 1 CHECK	
Check and Collar Complete	
8 inch, each.....	2 00
9 inch, each.....	2 25
End Check Only	
8 inch, each.....	1 60
9 inch, each.....	1 85
Collar Only	
8 inch, each.....	50
9 inch, each.....	65

No. 2 CHECK	
8 inch, each.....	1 00
9 inch, each.....	1 00
10% Disc. on Adams No. 1 and No. 2 Check	
Diamond Smoke Pipe	
7 inch, doz.....	\$ 2 00
8 inch, doz.....	3 20
9 inch, doz.....	4 00
10 inch, doz.....	6 00

Adams' Sheet Metal	
7 inch, doz.....	\$ 1 60
8 inch, doz.....	2 20
9 inch, doz.....	2 60
10 inch, doz.....	3 20
12 inch, doz.....	3 50
14 inch, doz.....	5 00

EAVES TROUGH	
Galv. Crimpedge, crated 75 & 5%	
Zinc, "Barnes".....	60%

ELBOWS	
Conductor Pipe	
Galv. plain or corrugated, round flat Crimp.	
28 Gauge.....	60%
26 Gauge.....	45%
24 Gauge.....	15%

Galv. & Terne Steel	
Plain Rd. and Rd. Corr.:	
28 Ga.....	60%
26 Ga.....	45%
24 Ga.....	15%

Square Corrugated	
No. 28 Gauge.....	50%
26 Gauge.....	35%

Fertico Elbows	
Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested.....	70 & 5%
Nested Solid.....	70 & 5%

Sq. Corr. A. & B. & Octagon	
28 Ga.....	50%
26 Ga.....	35%

Fertico	
1", 1 1/4", 1 1/2".....	45%

Copper	
16 oz., all designs.....	50%

Zinc—	
All styles.....	60%

ELBOWS—Steve Pipe	
1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge. Doz.	
5-inch.....	\$1 05
6-inch.....	1 30
7-inch.....	1 75

Special Corrugated	
6-inch.....	\$1 00
7-inch.....	1 40

Adjustable—Uniform Blue	
"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch.....	\$1 65
6-inch.....	1 75
7-inch.....	2 10

WOOD FACES—50% off list.	
FENCE	
726-6-12 1/4 (100 rods).....	\$28 63
1948-6-14 1/4 (100 rods).....	43 62

FILES AND RASPS	
Heller's (American).....	50-10%
American.....	60-10%
Arcade.....	50%
Black Diamond.....	50%
Eagle.....	50%
Great Western.....	50%
Kearney & Foot.....	50%
McClellan.....	50%
Nicholson.....	50%
Simonds.....	60%

FIRE POTS	
Geo. W. Diener Mfg. Co.	Ea.
No. 62 Gasoline Torch, 1 qt.....	\$ 1 13
No. 6250, Kerosene, or Gasoline Torch, 1 qt.....	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.....	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.....	10 70
No. 21 Gas Soldering Furnace.....	3 60
No. 110 Automatic Gas Soldering Furnace.....	10 50

Quick Meal Steve Co.	
Vesuvius, F. O. B. St. Louis 30% (Extra Disc. for large quantities.)	

GALVANIZED WARE	
Pails (Galv. after made), 10-qt.....	\$2 00
Tubs (Galv. after made), No. 1.....	5 75
No. 2.....	6 50

GLASS	
Single Strength, A, 52-in. brackets.....	89-5%
Single Strength, 9, 34 to 40-in. brackets.....	89-5%
Single Strength, A, all other brackets.....	89-5%
Double Strength, A, all sizes 89%	

HANGERS	
Conductor Pipe	
Milcor Perfection Wire.....	25%
Milcor Triplex Wire.....	10%

Eaves Trough	
Milcor Steel (galv. after forming) List.....	plus 13 1/2 %
Milcor Selflock E. T. Wire, List.....	plus 50%

HOOKS	
Conductor "Direct Drive" Wrought Iron for wood or brick.....	15%

HUMIDIFIER	
"Front-Range," Automatic	
In single lots.....	50%
In lots of 10 or more.....	50-5%
In lots of 25 or more.....	50-10%
Vapor pans, etc., each.....	50%

LIFTERS	
Steve Cover	
Coppered.....per gro.	\$6 00
Alaska.....per gro.	4 75

MALLETS	
Tinners	
Hickory.....per doz.	\$3 25

MITRES	
Galvanized steel mitres, 28 Ga.....	70
26 Ga.....	60-20

NAILS	
Cut Steel.....	\$4 35
Cut Iron.....	4 35

Wire	
Common.....	\$3 10
Cement Coated.....	3 10

(Continued on Page 112)



No Cross Seams.  
One Longitudinal Seam.  
Smooth on Inside.

## Galvanized Lock Seam Pipe

The Pipe With the Big Strong Seam

Made to Fit Flanges, or  
With Large and Small Ends.  
For Slip Joint Connection.

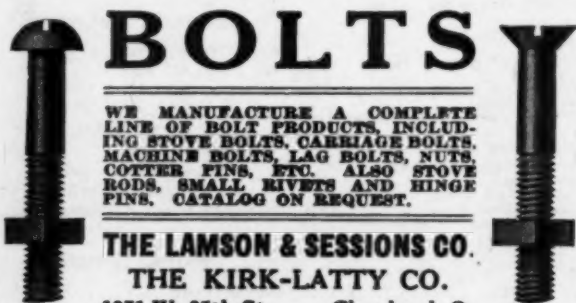


Three inch Diameter and Larger. 24 Gauge and Heavier. Up to 10 feet Long.  
Used for Blow Pipe, Exhaust, Ventilation, Drainage, Surface Irrigation, etc.

—WRITE FOR CATALOGUE—

Welded Steel Pipes, Rolled Angle Flanges, Spiral Lock Seam Pipe, Forged Steel Flanges, Fittings for every type of Sheet Steel Pipe. If it is made of Sheet Metal, send us detail or blue print for price.

CHICAGO METAL MFG. CO. - 3718 South Rockwell Street, Chicago, Illinois



## BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS. CATALOG ON REQUEST.

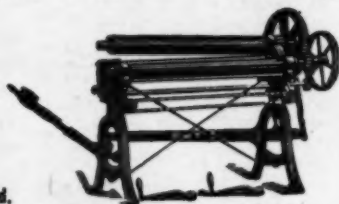
THE LAMSON & SESSIONS CO.  
THE KIRK-LATTY CO.  
1971 W. 85th St. Cleveland, O.

## 50-INCH FORMING ROLL

This Forming Roll is built in all standard sizes, with our Patented Opening Device by means of which it is opened and closed in a few seconds.

We build a complete line of Shears and punches, all sizes, for hand or belt power.

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## The NEW IMPROVED "STANDARD"

### Rotable Ventilator

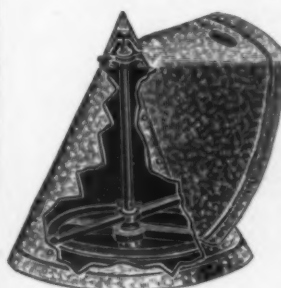
Now made of Armco Iron

This favorite cone-shaped ventilator is now improved in several important points.

The weight of the ventilator body is now carried on a concave thrust bearing nested in the apex of the conical body. This bearing turns upon the pivot point of the stationary center spindle.

The bronze Guide Bushings are now made of non-corrosive bronze which minimizes friction and any tendency to screech when body is rotating.

There are other new features. Write today for new catalog and price list.



Patents pending

STANDARD VENTILATOR CO., Lewisburg, Pa.

## -B.B.- LINE OF SHEET METAL SUPPLIES

B.B. CONDUCTOR HOOKS AND GUTTER HANGERS

"SHUR-LOCK" CONDUCTOR PIPE

OCTAGON AND POLYGON CONDUCTOR PIPE

"E-Z FIT" EAVES TROUGH

"QUAKER CITY" MITRES, ENDS, CAPS AND OUTLETS

EAVE TROUGH STRAP AND ROD HANGERS

ORNAMENTAL CONDUCTOR STRAPS AND ENDS

YOUR JOBBER CARRIES THEM IN STOCK FOR PROMPT SHIPMENT

Manufactured by

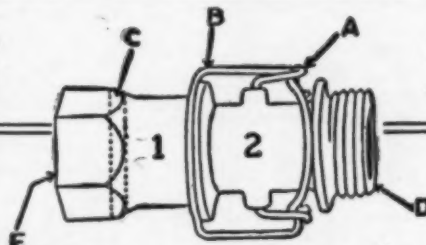
BERGER BROS. CO.

229 to 237 ARCH STREET

PHILADELPHIA

The simplest  
hose  
coupling  
made

Snap  
on or off  
quickly.  
Does  
not leak.



## HESSLER Perfect Hose Connection

YOU and your customers, everybody who uses a hose will welcome the Hessler Hose Connection. It saves hose length and the hose, no kinking or twisting—no splashing, no leakage and you snap it on or off in a wink.

The Hessler will be a big, fast seller and a real profit maker.

Order a sample lot now—made in four sizes. Write today for price and circulars.

H. E. HESSLER CO.

Syracuse, New York

Read the Wants and Sales Pages



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The dash (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

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NETTING, POULTRY		RIDGE ROLL	
Galvanized before weaving	60%	Galv. Plain Ridge Roll, b'd'd	75-10-6%
Galvanized after weaving	50-10%	Galv. Plain Ridge Roll, crated	75-10%
		Globe Finials for Ridge Roll	50%
PASTE		SCREWS	
Asbestos Dry Paste:		Sheet Metal	
200-lb. Barrel	\$16 00	7. 1/4x1/4, per gross	\$0 52
100-lb. barrel	8 75	No. 10, 1/4x3/16, per gross	48
35-lb. pall	3 50	No. 14, 1/4x1/4, per gross	58
10-lb. bag	1 10		
5-lb. bag	60		
2 1/2-lb. cartons	35		
POKERS, FURNACE		SHEARS, TINNERS' & MACHINISTS'	
Each	\$0 75	Viking	\$22 00
POKERS, STOVE		Lennox Throatless	
Nickel Plated, coil handles, per doz.	1 10	No. 18	35%
Wrt Steel, str't or bent, per doz.	\$0 75	Shear blades	10%
		(f. o. b. Marshalltown, Iowa)	
PIPE		SHIELDS, REGISTER	
Conductor		No. 1 "Gem" floor	\$12 00 doz.
Cor. Rd., Plain Rd., or Sq.		No. 2 "Gem" wall	6 00 doz.
Galvanized			
Crated and nested (all gauges)	75-2 1/4%		
Crated and not nested (all gauges)	70-15%		
Furnace Pipe		SHOES	
Double Wall Pipe and Fittings	50%	Galv. 28 Gauge, Plain or corrugated round flat crimp	60%
Single Wall Pipe, Round	50%	26 gauge round flat crimp	45%
Galvanized Pipe	50%	24 gauge round flat crimp	15%
Galvanized and Tin Fittings	50%		
Lead		SNIPS, TINNERS	
Per 100 lbs.	\$12 50	Clover Leaf	40 & 10%
Stove Pipe		National	40 & 10%
"Milcor" "Titelock" Uniform Blue		Star	50%
Stove		Milcor	Net
28 gauge, 5 inch U. C. nested	10 50		
28 gauge, 6 inch U. C. nested	11 00	SQUARES	
28 gauge, 7 inch U. C. nested	13 00	Steel and Iron	Net
30 gauge, 5 inch U. C. nested	9 00	(Add for bluing \$3 per doz. net)	
30 gauge, 6 inch U. C. nested	10 00	Mitre	Net
30 gauge, 7 inch U. C. nested	12 00	Try	Net
T-Joint Made up		Try and Bevel	Net
6-inch, 28 ga.	per doz. \$ 4 00	Try and Mitre	Net
All Zinc		Fox's	per doz. \$8 00
No. 11, all styles	60%	Winterbottom's	10%
PULLEYS			
Furnace Tackle	per doz. \$0 85		
Furnace Screw (enameled)	per doz. 75		
PUTTY		STOPPERS, FLUE	
Commercial Putty, 100-lb. Kits	\$3 50	Common	per doz. \$1 10
		Gem, No. 1	per doz. 1 10
		Gem, flat, No. 3	per doz. 1 00
QUADRANTS		VENTILATORS	
Malleable Iron Damper	10%	Standard	30 to 40%
REDUCERS—Oval Stove Pipe		WIRE	
7-6, 28-gauge, 1 doz. in carton	\$2 00	Plain annealed wire, No. 1 per 100 lbs.	\$3 05
		Galvanized barb wire, per 100 lbs.	3 90
		Wire Cloth—black painted, 12-mesh, per 100 sq. ft.	1 25
REGISTERS AND BORDERS		Cattle Wire—galvanized catch weight spool, per 100 lbs.	3 20
Baseboard, Floor and Wall.		Galvanized Hog Wire, 30 red spool, per spool	3 12
Cast Iron	20%	Galvanized Plain Wire, No. 9, per 100 lbs.	3 25
Steel and Semi-Steel	40%	Stove Pipe, per stone	1 10
Baseboard, 1 piece	40-50%		
Baseboard, 2 piece	40%		
Wall	40%		
Adjustable Ceiling Ventilators	40%		
Register Faces—Cast and Steel		WRINGERS	
Jananned, Bronzed and Plated, 4x6 to 14x14	40%	No. 750, Guarantee	each \$5 10
Large Register Faces—Cast, 14x14 to 28x43	80%	No. 770, Bicycle	each 4 70
Large Register Faces—Steel, 14x14 to 28x43	85%	No. 870, Domestic	each 4 35
		No. 110, Brighton	each 3 70
		No. 750, Guarantee	each 5 10
		No. 740, Bicycle	each 4 70
		No. 22, Pioneer	each 3 40
		No. 2, Superb	each 3 25
Ventilating Register			
Per gross	\$ 00		
Small, per pair	30		
Large, per pair	50		

## Lefever & Issitt

Plumbing, Heating  
and Sheet Metal Work

Anthony, Kansas

June 7, 1928.

American Artisan,  
620 So. Michigan Ave.,  
Chicago, Illinois.

Gentlemen:

We are in the market for a square shear,  
also an 8-foot used cornice brake. Any information  
you can supply along this line will be greatly appre-  
ciated.

The boys in the shop just about wear the  
Artisan out between issues. You certainly have a  
snappy bunch of information in every issue and all  
of us enjoy it immensely.

Yours very truly,

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*Geo. E. Issitt,*

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**Acetylene (Gas) Dissolved.**  
Prest-O-Lite Co., Inc.,  
New York, N. Y.

**Air Filters.**  
Sturtevant Co., B. F., Boston, Mass.  
**Bale Ties.**  
American Steel & Wire Co.,  
Chicago, Ill.

**Bolts—Store.**  
The Kirk-Latty Co.,  
Cleveland, Ohio  
Lamson & Sessions Co.,  
Cleveland, Ohio  
Ryerson & Son, Inc., Jos. T.,  
Chicago, Ill.

**Brakes—Bending.**  
Dreis & Krump Mfg. Co.,  
Chicago, Ill.  
Ryerson & Son, Inc., Jos. T.,  
Chicago, Ill.

**Brakes—Cornice.**  
Dreis & Krump Mfg. Co.,  
Chicago, Ill.

**Brass and Copper.**  
American Brass Co.,  
Waterbury, Conn.  
Copper & Brass Research As-  
sociation, New York

**Burners—Gas.**  
Wender-Worker Gas Appliance  
Co.,  
Cincinnati, Ohio

**Code Calculator.**  
Standard Code Computing Rule  
Co.,  
Baltimore, Maryland

**Cans—Garbage.**  
Osborn Co., The J. M. & L. A.,  
Cleveland, Ohio

**Castings—Malleable.**  
Fanner Mfg. Co., Cleveland, Ohio

**Ceilings—Metal.**  
Burton Co., The W. J.,  
Detroit, Mich.

**Friedley-Voshardt Co.,**  
Chicago, Ill.  
Milwaukee Corrugating Co.,  
Mil., Ch'go, La Crosse, Kan. City  
Wheeling Corrugating Co.,  
Wheeling, W. Va.

**Chaplets.**  
Fanner Mfg. Co., Cleveland, Ohio  
**Chimney Tops.**  
Standard Ventilator Co.,  
Lewisburg, Pa.

**Clinker Tongs.**  
L. J. Mueller Furnace Co.,  
Milwaukee, Wis.  
Stover Mfg. & Engine Co.,  
Freeport, Ill.

**Copper.**  
American Brass Co.,  
Waterbury, Conn.  
Copper & Brass Research As-  
sociation, New York

**Cornices.**  
Friedley-Voshardt Co.,  
Chicago, Ill.  
Milwaukee Corrugating Co.,  
Mil., Ch'go, La Crosse, Kan. City

**Cutting Blowpipes**  
Oxweld Acetylene Co.,  
New York, N. Y.

**Cut-offs—Rain Water**  
Milwaukee Corrugating Co.,  
Mil., Ch'go, La Crosse, Kan. City

**Dampers—Quadrants—Accessories.**  
Milwaukee Corrugating Co.,  
Mil., Ch'go, La Crosse, Kan. City  
L. J. Mueller Furnace Co.,  
Milwaukee, Wis.

**Parker-Kalon Corp.,**  
New York, N. Y.  
Stover Mfg. & Engine Co.,  
Freeport, Ill.

**Die—Punch & Press.**  
La Salle Machine Works,  
Chicago, Ill.

**Diffuser—Air Duct.**  
Aeolus-Dickinson Co.,  
Chicago, Ill.

**L. J. Mueller Furnace Co.,**  
Milwaukee, Wis.

**Doors—Metal.**  
Lupton's Sons Co., David,  
Philadelphia, Pa.

**Drive Screws—Hardened Metallic**  
Parker-Kalon Corp.,  
354 West 15th St., New York

**Eaves Trough.**  
Barnes Metal Products Co.,  
Chicago, Ill.  
Berger Bros. Co.,  
Philadelphia, Pa.

**Berger Co., L. D.,**  
Philadelphia, Pa.  
Burton Co., The W. J.,  
Detroit, Mich.  
Lupton's Sons Co., David,  
Philadelphia, Pa.  
Milwaukee Corrugating Co.,  
Mil., Ch'go, La Crosse, Kan. City  
New Jersey Zinc Sales Co., The  
New York, N. Y.  
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Wheeling, W. Va.

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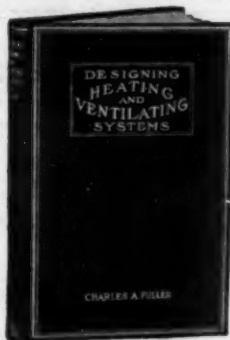
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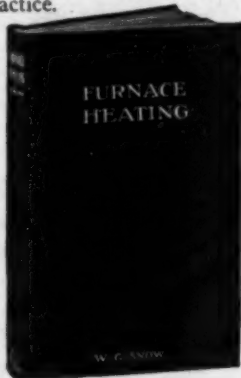
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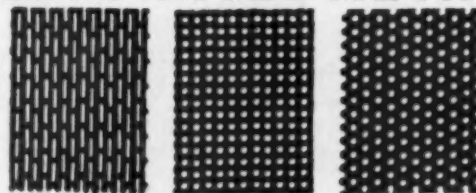
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**For Sale**—Sheet metal shop in California. Fully equipped with all tools necessary for fast work in the contracting line. 10 ft. steel brake, 4 ft. brake, 8 and 3 ft. square shears, 3 ft. rolls, two Ford trucks, benches and bench tools. I am manufacturing a metal specialty and can not devote my time to the contracting end of the business much longer. Address **R475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**For Sale**—Furnace and sheet metal business in southwest Missouri City. Town of 8,000. Stock, machinery, truck, price \$700. Building facing main street, can be bought or rented for \$20 a month. Work on hand now. Reason for selling, retiring. Address **T475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**For sale or exchange in Chicago**, well established good paying general sheet metal furnace and roofing business in excellent location with stock and full equipment. A fine opportunity for a live hustler. Selling on account of age. Address **P475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**For Sale**—Sheet metal shop employing five men. Doing industrial sheet metal work, well known and advertised good location and reputation. All around able man will make good. Located in Chicago. \$1,500 will handle. Address **O475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**For Sale**—Sheet metal and radiator shop—also roofing in good town of 4,000 population in Western Florida. Equipped to do all kinds of work. \$300 needed. Rest to suit purchaser. Address **S475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**For Sale**—Plumbing and tin shop in good live town. Good building and cheap rent on main street. Illness in family compels us to sell. \$1,000 will handle this if taken at once. Address **G. M. Baugh & Son, Farmington, Ill. M475**

## BUSINESS CHANCES

**For Sale**—Only sheet metal, furnace and radiator repair shop in good South Dakota town of 3000. Well equipped shop doing good business. Reasonable rent. Half cash and balance on monthly payments. Address **F-476, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill.**

## SITUATION WANTED

Strictly sober, dependable, married, union sheet metal worker and warm air heating specialist desires connection with good live firm where quality work rules. Do layout work when necessary. Steady position in Colorado or adjacent states preferred. 30 years old. 14 years at business. Believe in Standard Code. Address **J475, AMERICAN ARTISAN, 620 S. Michigan Avenue Chicago, Ill.**

**Situation Wanted**—Salesman having more than 10 years' experience selling furnaces and stoves in Central and West Central States. Familiar with Standard Code and Fan jobs. Available June 15, 1928. Address **D-475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.**

**Situation Wanted**—By good tinner, 58 years old, unable to do any high climbing. Can furnish tools, 8-foot brake included, if wanted. Eastern Minnesota or Northwestern Wisconsin preferred. State salary. Address **F-475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.**

In Chicago—Sheet metal estimator and salesman is looking for a new connection. Architectural and actual building experience along with education make him an ideal contact man. Address **G-475, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

Sheet metal worker and repair man for such as plumbing, steam fitting and boiler repairs with 15 years of experience wants steady position. Capable and steady. Address **H475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**Situation Wanted**—By a sheet metal worker. Can work from blue prints and cut patterns for anything in building line. Address **J-476, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill.**

## HELP WANTED

**Wanted**—A workman foreman around 40 years of age that can take charge and run a first class medium sized Sheet Metal Shop. Steady work guaranteed to a live wire. Don't answer unless you can fill a position of this kind. Address **P. O. Box 123, North Emporia, Virginia. G-476**

**Help Wanted by Established Hardware**—Experienced man capable of handling plumbing, sheet metal, pump and windmill work. Good chance for steady, reliable man in desirable village in northern Illinois. State particulars. The Culison Hardware Co., Hebron, Ill. **K475**

**Sheet Metal Worker and Furnace Man Wanted**—Would like mechanic who can also do plumbing. State experience and whether married or single and wages wanted. Address **C. W. Beer, Alexandria, Nebr. L475**

**Wanted**—All around hustler in Sheet metal, plumbing and furnace shop. One who can drive a car, and a single man preferred. Address **O. L. Doward, Box 115, Mt. Morris, Ill. H-476**

## TINNERS' TOOLS

**For Sale**—36" Queen City Square Shears; 30" Keystone bar folder; 37" Niagara slip rolls; 8 foot brake. Some bench tools. These were bought new and used very little. Write for list and prices. **E. Haverstock, R. R. No. 8, South Bend, Ind. W475**

**Will Trade**—We have a 5 foot box brake that will handle metal from 14 gauge up, which we will trade for an 8 foot or 10 foot (10 foot preferred) cornice brake. Address **G. & S. Stove and Furnace Co., 4224 W. North Avenue, Chicago, Ill., Telephone Albany 7891. X475**

**For Sale**—Full set of tinner's tools including crimper, set of rolls and burring machine, 8 foot Dreis & Krump Brake. Must be sold at once. You can get these at a bargain. Address **L-476, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill.**

**For Sale**—One No. 116 Junior Spot Welder, 220 volt, 60 cy. Made by The Federal Machine & Welder Co. Address **Neosho Plumbing, Heating and Mfg. Co., Neosho, Mo. K-476**

**For Sale**—8 foot Chicago Steel Cornice Brake in first class condition. In Central Illinois. Price \$89.00. Address **M-476, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill.**

**Want to buy cornice brake and bench machines.** Price must be right. Address **Y475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

**Wanted**—Good Second Hand 8 or 10 foot brake. Also 30 inch square shear. State price and condition. Address **A. J. Schultz, Kimball, Nebr. O-476**

**Wanted**—1 used 8-foot steel cornice brake. Address **R. B. Quimby, 2336 O Street, Lincoln, Nebr. E-475**

## MISCELLANEOUS

**Patents for Sale**—Outright or royalty on Heating Appliance for Radiant Heaters and Furnaces. Practical pre-heating and air warming features. Also patent on Radiant fireplace heater. Smoke consuming and powerful heating features. Removes cold air from floor. Easily installed as complete fireplace or in any fireplace. Full particulars on request. Address **Z475, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**



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## BOOKS

The Ventilation Handbook, by Charles L. Hubbard. A practical book designed to cover the principles and practice of ventilation as applied to furnace heating, ducts, flues and dampers for gravity heating; fans and fan works for ventilation and hot blast heating by means of a comprehensive series of questions, answers and very plain descriptions easy to understand. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and the 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5½x9 inches. Price \$2.50. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

The problem of keeping an accurate set of books is one which gives many sheet metal contractors a lot of trouble. A new and very simple system called the National Faultless System makes it possible for you to be your own bookkeeper. It is really four books in one. It contains records for four years and ALL transactions and records for one month are recorded on ONE PAGE. This system eliminates cash book, day book and journal, but qualifies every transaction of a full month's business on one sheet. Many other features. Write, for full details, Book Dept., AMERICAN ARTISAN, 620 South Michigan Ave., Chicago.

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## PATENTS

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Patent Attorney  
Barrister Bldg., WASHINGTON, D. C.

## IN CHICAGO

SHEET METAL ESTIMATOR  
AND SALESMAN

is looking for a new connection. Architectural and actual building experience along with education make him an ideal contact man. Address G-475, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.



## WANTED

## A SALES MANAGER

A real Sales Manager knows exactly what there is to do and whether or not he can do it, and so do we. Now tell us in detail just how you expect to proceed if given good merchandise, sufficient capital and full cooperation, and if your ideas agree with ours and your personal habits are good, you will be given the opportunity to connect with one of the greatest opportunities ever offered in the warm air furnace industry. Address P-476, care of American Artisan, 620 South Michigan Avenue, Chicago, Illinois.



## Salesmen Wanted

We want capable, ambitious men, with or without selling experience, interested in making \$100.00 per week, and more. Men with knowledge of warm air heating systems will be given preference. The Automatic Drip Humidifier meets a need that has been recognized for years. Protects health; saves fuel. No warm air furnace complete without this device. We have an excellent opportunity for men who can sell to dealers or who are interested in establishing a local business for themselves. Address Automatic Humidifier Co., Cedar Falls, Iowa. E-476

## SPECIAL NOTICE

## SALESMAN WANTED

to sell ventilating equipment of exceptional merit. We are interested only in a good live representative who can produce results — commission basis. Address F473, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.

## WANTED

Warm Air Heating Salesman of long and successful Holland training to head local sales force. Preferably man of 30-35 years of age. Give us full particulars in application. The Youngstown Furnace Co., Youngstown, Ohio. D-476

## WANTED

District Sales Manager: We are looking for two or three men with records of business getting ability competent to direct sales in a territory with two or three men under them. Must be practical warm air heating men thoroughly familiar with the Standard Code. References must be A-1. If you can meet the requirements write or wire. Lennox Furnace Co., Inc., Syracuse, New York. B476

## WANTED

Two or three high class energetic salesmen to act as District Sales Managers. Must have a proven record of past accomplishments as salesmen above the average. Compensation accordingly. Address Lennox Furnace Co., Marshalltown, Iowa. A476

## WANTED

Furnace salesman to handle as sideline, an item that sells to nine Furnace Dealers out of ten. See liquid asbestos ad on page 86, B. & F. Mfg. Co., Des Moines, Iowa. C-476

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## As indispensable as snips and solder to more than 35,000 sheet metal workers—

**N**O longer do the majority of sheet metal workers waste valuable time fumbling in awkward places with stove bolts and nuts when joining sheet metal or making fastenings to sheet metal. They use Parker - Kalon Hardened Self-tapping Sheet Metal Screws—save 50% to 75% in time and labor—and turn out more and better work at a greater profit.

### Here's how they work

Only two simple operations are required:

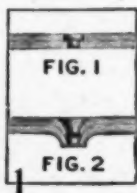


FIG. 1  
Punch or drill a hole as in Fig. 1; or pierce a hole as in Fig. 2.



FIG. 2  
Turn in the Screw with a screw driver.

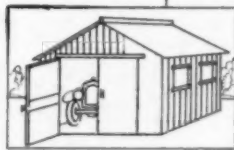
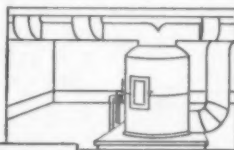
The Screws are so threaded and hardened that they cut their own thread in sheet metal like a tap, binding the sections firmly together. The result is a solid joint that vibration won't loosen.

### Here's what they save

You drive these Screws in from the outside. No time and labor is wasted putting on nuts and washers. When they replace machine screws, the costly tapping operation is eliminated and tapping plates and other devices become unnecessary.

### Here's where they save

Sheet metal workers use Self-tapping Screws for joining cornices and attaching ornaments to cornices; assembling and erecting hot and cold air ducts; joining furnace pipe



and casings; fastening asbestos covering; erecting fans, housings, etc.



They are also cutting costs in manufacturing ventilators, warm air furnaces, gas and electric ranges, oil stoves, metal windows, doors and partitions, metal buildings, roofing, signs, weatherstrip, screens, furniture, refrigerators and scores of other sheet metal products.

### Try them out at our expense

These Screws can effect the same economies for you. Why not try them out... Just tell us what you want to fasten. We will gladly send you a handful, of the proper size, without charge or obligation.

## PARKER-KALON HARDENED SELF-TAPPING Sheet Metal Screws

PATENTED  
APR. 1, 1919—No. 1299232 — MAR. 28, 1922—No. 1411184  
AUG. 14, 1923—No. 1465148 — FEB. 10, 1925—No. 1526182  
OTHERS PENDING

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190 Varick St. New York, N. Y.

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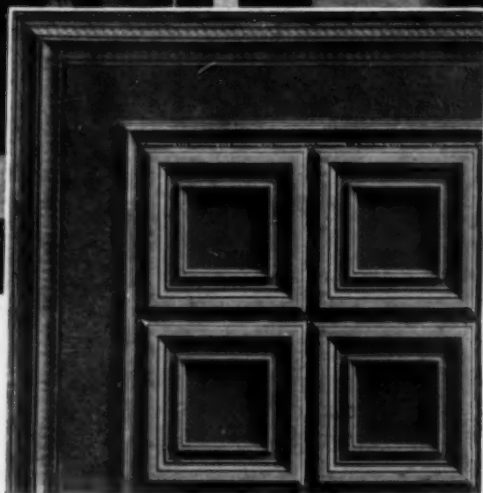
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